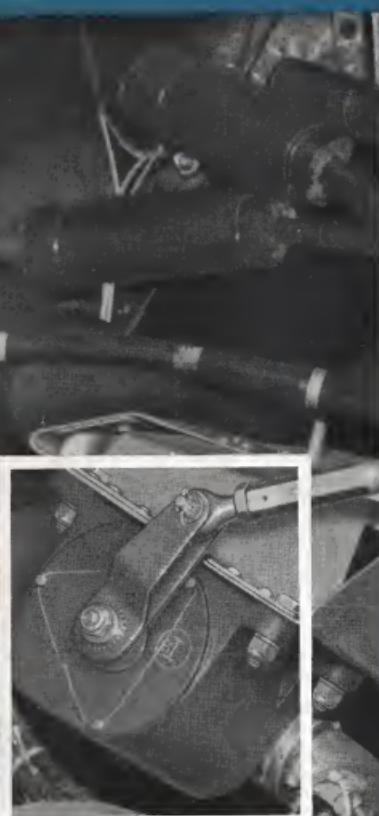


# AVIATION WEEK

A McGRAW-HILL PUBLICATION

SEPT. 22, 1952

50 CENTS



## LITTLE MOTOR IN A TOUGH SPOT

That's it framed there on the left—a Honeywell standard model actuator.

Looks kind of tiny, doesn't it, next to the "Major," the giant Pratt & Whitney engine it serves aboard a Boeing Stratocruiser?

It may be little, but it's certainly not delicate.

For in the course of performing its job of opening and closing the wastegate of the engine's turbo-supercharger, this particular Honeywell actuator has absorbed hundreds of hours of punishment. Yet in spite of vibration, heat, pounding, dust—it performs as efficiently as the day it was installed.

There is a whole "family" of Honeywell actuators as tough and dependable as this one. They're designed to perform a wide variety of remote control jobs—from the one described above, to positioning dampers on aircraft heating ducts. Built to exceed the most rigid Air Force specifications, they're now available to manufacturers who are looking for rugged, quality performance.

A letter addressed to Dept. 407 (AW), Honeywell Aero Division, Minneapolis 13, Minnesota, will bring you full facts about our actuator line.

MINNEAPOLIS  
**Honeywell**



Aeronautical Controls

# 400%

## INCREASE IN PRODUCTION FACILITIES—

as Hydro-Aire moves  
into its new plant

The completion of the new Hydro-Aire plant at Burbank, California, supplemented by four additional plants,\* increases the production facilities of Hydro-Aire 400% over 1951.

This means faster delivery of larger quantities of vital parts in the field of Pumps, Hydraulic-Pneumatic Fuel System Components, and Electrical-Mechanical Actuators.

Greatly expanded engineering laboratories, considered to be the finest company-operated in this field, assure the industry continued years-ahead research in the entire field of aeronautics.

*\*Including a completely equipped plant to handle special assignments and experimental projects*

**HYDRO-AIRE**  
Inc.  
BURBANK, CALIFORNIA  
Subsidiary of Crane Co.



# B.F.Goodrich



## Molded lips that seal tight come open with a zip

Seal that saves muscle zip off to save time (1). In the Boeing B-47 units were needed between elevator and stabilizer, rudder and stabilizer, and elevator and wing to make control cables easier. But with ordinary seals, insulation of cables would have to be removed every time a control surface had to be taken off. B.F. Goodrich invented Pressure Sealing Zippers for the B-47. Their molded rubber lips successfully prevented air flow through the hinge area and mechanics savings the time.

It lets men in-knee flanges out (2). Keeping engine flanges out of a jet's

cockpit called for a partition between cockpit and fuselage. But with a standard metal partition, mechanics would have to lose time with bolts or screws to get in. For maintenance BFG engineers came up with a canvas coated with a Pressure Sealing Zipper. The uppermost molded rubber lip provides a 300% effective seal. The canvas can be ripped open in seconds.

Pressure Sealing Zippers proved ideal. Their molded lips provide a 100% seal. They resist heat and damage, speed maintenance.

Pressure Sealing Zippers fit irregular shapes. Can be customized. Save space and weight. Other B.F. Goodrich products for aviation include seals, hoses and hoses, bonded rubbers, Dr. Izod, Avonite, inflatable seals, fuel cells, Plasticized refrigerants, Eryzene, acoustics. The B.F. Goodrich Company, Aeronautical Division, Akron, Ohio.

**B.F.Goodrich**  
FINEST IN RUBBER



# NEWS DIGEST

## Domestic

40,000 aircraft workers were idle in the Los Angeles area last week while 15,000 employees at Douglas Aircraft Co.'s El Segundo plant went on strike. While the El Segundo local of the AFL International Association of Machinists voted 2,187 to 1,256 for strike, the Santa Monica local voted 2,388 to 1,137 to accept the company's offer of a five-cent pay increase plus other benefits, and production continued at that plant. At Lockheed, the strike of 25,000 IAM members continued, but did not affect production at the company's subsidiary, Lockheed Aircraft Service, Inc.



**ALUMINUM ANNIVERSARY** of the Boeing Superfortress was celebrated Sept. 24, ten years after the XB-15, designed to dive-bomb, took off from Seattle's Boeing Field in 1942. It was not until June 1944 that the public heard of the new bomber.

that the world's largest and fastest—of a fleet of the Superfortress bombed a Japanese target. A total of 3,930 B-17s had been built, 2,766 by Boeing, 616 by Bell Aircraft, and 356 by Glenn L. Martin, whose production ended.

## Financial

Textron Aircraft Corp. has declared regular quarterly dividend of five cents plus five cents extra, payable Sept. 30.

Cessna Aircraft Co. reported actual sales of private airplanes in excess of \$15 million in 1967, its highest year and led dollar volume that year. Cessna led the industry in private plane sales each month that year, the company claims.

## International

Prof. Ernst Heinkel, German aircraft designer, believes West Germany should be licensed to produce European aircraft designs, as without German production he does not think demand can be satisfied. Germany and the Netherlands are currently building aircraft. Heinkel claims after a visit to the Farnborough display at Farnborough, England, although much of its machine tools, plant and equipment would have to be brought in as well. He says a large cutback will follow up with the program made in the seven years Germany has lost, if production should start from scratch. British engineers have developed in "extreme hurry" following the loss of German contractors during the war, Heinkel says, and the cost of the parallel plant is "negligible" starting this end."

**BAC/Boeing T-45A** factory-made parts will be used in "checkouts" for USAF purchases under a new Air Training Command program. The men could be trained in fundamentals of T-45A maintenance before they set out on the aircraft itself. Production of the USAF version, now in the rolling stage, will start on completion of new \$13-million building at the main Beechcraft plant, Wichita.

A. F. Pendleton, vice president and general manager of Comptelco's Vought Corp., San Diego, will resign Oct. 1, to assume a new position with the First Interstate Bank. Pendleton, Gen. Joseph T. McNamara delayed his retirement until Feb. 1 to help him furnish control of Pendleton to First Interstate.

**2d Lt David Claude Ross**, 22, pilot son of T. Claude Ross, aircraft builder, was killed when his T-38 failed to pull out of a low-level bombing run, just two weeks before he was to have completed his advanced training as a jet pilot at Nellis AFB, Las Vegas.

New York International Airport's new control tower was dedicated at 10:00 AM Sept. 16. The 11-story tower includes

Australian imports of aviation products increased by over \$10 million last year compared with the previous year's \$15 million. Exports of engines and spares were worth \$14 million.

**Trans-Australia Airlines** five Convair 880s have been sold so extensively that they have grossed more than three times their initial cost in four years, the company says. Maintenance costs have been below expectation. The company states that only government refusal to issue two dollar bills keeps it from buying more Convairs.



We call it **mechatronics\*** as a symbol for Servomechanisms, Inc., technique for the multiple and interchangeable use of standard, functionally packaged, servo components in varied electronic and electro-mechanical systems. mechatronics fulfills the urgent need for

- Spatial Adaptability
- Instant Maintainability
- Training Simplicity
- Ease of Assembly



A typical Servomechanisms, Inc., assembly using packaged functions.

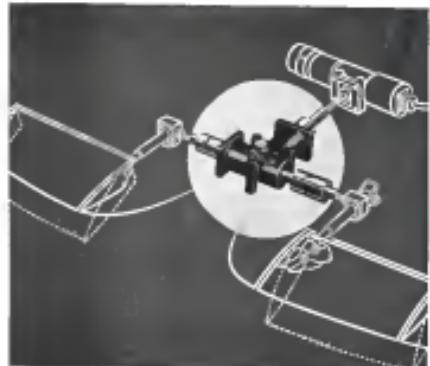
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**ANGLgear** supplements  
rotary actuator on  
**TRIM TAB CONTROL SYSTEM**



In some aircraft installations, ANGLers supplement other Airborne products. The horizontal stabilizer trim tab control system is a good example of such an application.

A 3-way ANGLgear® right angle, bevel gear unit, an R-118 Reverb® Electric Rotary Actuator, two screw jacks and variable linkage make up the system.

ANGLgram has hardened gears, ball bearings, flanged end mountings, 8-hole side mountings, and an external pilot on mounting ends. Ratio is 1:1. Lubricated for life.

Two basic sizes with three ratings are described in the J.A.S. Aeromarine Engineering Catalog. Consult it for dimensions and other pertinent information.

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AVIATION CALENDAR

- Sept. 23-25—*Transport* Assn annual engineering and maintenance conference, Statler Hotel, Miami Beach, Fla. (please see our preprint).

Sept. 25-26—Radio Technical Commission for Aeronautics fall monthly meeting, Hotel Statler, Buffalo, N.Y.

Sept. 26-28—Annual Medical Assn, annual meeting, Palm Springs.

Sept. 27—Montgomery Air Test dinner and lounge dinner Division Order of the Dept., Northeast, Inc., Mass.

Sept. 29-Oct. 1—National Electronics Conference, Statton Hotel, Chicago.

Sept. 30-Oct. 1—Aircraft Spark Plug and Ignition Conference, sponsored by Champion Spark Plug Co., Toledo.

Oct. 1-4—Society of Automotive Engineers national automotive meeting, aircraft engineering, display and aircraft products forum, Hotel Statler, Los Angeles.

Oct. 7-8—Automotive Electrical Systems annual technical meeting, Pan Pacific Auditorium, Los Angeles.

Oct. 9-10—Aircraft management symposium conference, Oklahoma University.

Oct. 11-14—Fourth annual All Test Assn, information available from Test Association, Cincinnati, Ohio.

Oct. 19-21—American Welding Society national meeting, Bellevue-Sheraton Hotel, Philadelphia.

Oct. 25-26—Submarine navigation and travel equipment, Navy Pier, Chicago.

Oct. 25-27—Trapped Aircraft Conference, Hotel Pennsylvania, New York City, Inc., Hotel Park Sherman, Detroit.

Oct. 26-28—AMEC Air Transport Committee annual meeting, Commodore Perry Hotel, Toledo.

Oct. 28-29—AMEC conference on explosive tanks, Tim Egan Hotel, Albany, N.Y.

Nov. 6-7—National Radio and Telecommunications Society of Automotive Engineers meeting, The Mayan Plaza, Glendale.

Nov. 12-13—Type distributor annual meeting, Lehigh Valley Inn, Bethlehem.

Nov. 17-19—National Aviation Trades Assn annual convention, Hollywood Roosevelt Hotel, Los Angeles.

Dec. 2—Symposium on lightmetal battery storage and extraction for aircraft, SAE-AIAE, 145 and 241E.

Dec. 10-12—Joint AIAE/SAE/ACM conference on electronic computers Park Sheraton Hotel, New York.

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**FACTURE CREDITS**

1-Tommy—E-1300, 16-1870, 18-Palmer, 22—Shawnee Wind, 23—(Oversize) Compton Photo, 236—(oversize) Mathematics Institute, 24—(oversize) National Bureau of Standards, 25—(oversize) National Bureau of Standards, 26—(oversize) National Bureau of Standards, 27—(oversize) Compton Photo, 28—(oversize) National Bureau of Standards, 29—(oversize) National Bureau of Standards.



COUGARS AND CUTLASS GET SEI-T—Two new General PTF-6 Cougars (longboard) and a silver Class V weight PTU 5 Cutlass went aground to start pt engines for certain qualification trials on the USS Midway. Note wing fences on the Cougars.



**FURY REHEarsed FOR TAKEOFF** North American XFJ-1 Fury (Sikorsky) gets hauled up to one of the Midway's catapulted engine starters during its carrier trials. All three new types of Navy fighters recently passed the carrier qualification tests.



## New Jets Try Their Sea Wings

CUTLASS DRAWS A CROWD—The big twinjet F7U-3 Cutlass (left) is examined by Navy men while being fueled aboard the Midway.

# INDUSTRY OBSERVER

This week's column was cabled from London by AVIATION WEEK executive editor Robert B. Hause, who is studying the British aircraft industry after attending the annual SBAC show at Farnborough.

► First all-shore purchase contract for the British aircraft industry will go to Vickers-Armstrongs for the Supermarine Swift. Contract may involve up to 300 Swifts to be produced first in Britain. Entec, Fokker probably will supply armaments from Holland. Final details on the contract are being敲定 in London, and negotiations between the British and Dutch are nearing a closure.

► The Hawker Hunter may not qualify for offshore purchase delivery date of 1955 because of production lag and RAF priorities. Second off-shore contract is likely to go for modified DH Venoms night fighters from Italy. Five hundred Venoms may be involved.

► There is growing apprehension in top British aviation circles of transonic performance and combat ability of the North American F-86 Sabre. Bristol, who a few years ago were inclined to regard the North American warplane as preeminent, now consider what they think is straight wing too long and at the result are without a frontline R&P fighter at present.

► Shortly before he died, the late John Derry, crack de Havilland transonic test pilot, wrote: "Recent tests in the F.86 had the audience fully convinced [about] its [ability]. It may have been near the beam, but few planes can fly as fast, as well and few fighters would have handled the highly loaded American aircraft capable of such extremes had they not witnessed them."

► RAF expects to get about 300 Canadian Canadairs with General Electric J47 engines next year. The earlier scheme to provide RAF with Sabre armament with British Rolls-Royce Avons was scrapped because R.R. couldn't make sufficient engines in addition to heavy British military requirements in time to meet the proposed delivery schedule. British pilots believe the Sabre being built in Australia with Avons and armed with four 20-mm cannons may be the best of the F.86 types now being built in three countries.

► Texas Engineering and Manufacturing Co. of Dallas is building a new submarine tender powered by an Armstrong-Siddeley Mantles battpropulsion at £475,000. The new Texas tender is due to be in full

► Napier's conropeeled engine, the Neneal, may be used in later versions of British Britannia transport if early problems of extremely low fuel consumption is resolved in aerial flight operations. Neneal may also be used in the new Saunders-Roe Flying boat patrol bomber project. Star project has a few problems at present despite a definite military requirement for a long-range patrol boat for the RAF Coastal Command. The Neneal still is in early development stage and will not be sold to regular airframe establishments for some time.

► Both the big Avro delta 698 bomber and the Gloster Javelin delta-night fighter are using the latest updated versions of the Avon and Sapphire, respectively. The Avro 698 is powered by two 7,500-lb-thrust Avons, while the Javelin uses a pair of 5,500-lb-thrust Sapphires.

► English Electric has a transonic bison design as the weak feature in an over-all under installation of two jet engines similar to the Short S.A. 4 nacelle arrangement.

► There is no future in sight for really large aircraft in Britain, Scotland and that Saunders-Roe Princess flying boat and the Second Bristol Broadspeed are being mothballed before completion. Second Cessna Air Horse (the project has been taken over by Saunders-Roe) will be dismantled after completing 25 hr flight testing.

## WHO'S WHERE

### In the Front Office

William F. Gandy has joined Skinner Aircraft Corp., Walker Locks, Conn., as manager to the president. He will handle corporate management. His prior position was purchasing agent for Chance-Vought aircraft.

### Changes

Edward F. Kotzschmieder has been named to the newly created position of chief development engineer, general design, for Standard Aircraft Division, Douglas Aircraft Co., Santa Monica, Calif. He succeeds James W. Johnson, who has been promoted to chief development engineer, component design, and Ralph B. Lightfoot has been assigned that of aerodynamics and flight research. Other promotions and their new titles: Walter Grunewald, chief of dynamics; James C. test engineer; Donald M. Pfeifer, aircraft systems engineer; and Ralph A. Stiles, development engineer.

Robert H. Frost has been promoted to chief engineer for Stinson Aviation Corp., Buffalo, N.Y.

Donald L. Mapley has been appointed manager of a new department for personnel and industrial relations in the Aero control division of Minneapolis-Honeywell Regulator Co., Minneapolis.

C. E. Bush, Matson, recently purchased chief of public relations, recently resigned. Robert E. Bush, former assistant manager, flight test, joined United Airlines Co., Ltd. in public relations manager.

John A. Alber has joined Lake Erie Engineering Corp., Buffalo, N.Y., as project engineer.

John F. Clark has been appointed as system factory manager of Antennadome division of General Motors, Dayton, Ohio. Jack Miller, formerly sales engineer for French Aircraft Corp., Wichita, Kan., has been named West region sales representative for the firm.

Frank F. Kellie has been designated as roof plant manager for Kaiser-Frazer, Wilton, Mass.

Joseph S. Alba has been named field on-gauge in the New York office of Solar Aircraft Co., replacing John L. Dowson, who moved to join General Electric Co. at Louisville, Ky.

K. P. Nandy has been made general manager and assistant to vice president of Phillips Petroleum Co., Bartlesville, Okla.

Ed E. Welsh has been named corporate service representative for Sunbeam Aircraft Co., Los Angeles. Donald E. E. Chapman succeeds him as SMC's service parts manager.

### What They're Doing

Henry M. Stevens has told his intent in leaving Fairchild Corp., and has formed his own firm, Henry M. Stevens & Associates, aircraft general metallurgical specialists. The firm is located at 210 Jones Bridge Road, Cleveland, Ohio.



Warren Matt Ross

Hawker-Siddley's long experience as a leader in propeller design and production is also devoted to supplying other equipment for such outstanding airplanes as the Douglas F4D Skyray jet fighter for the U.S. Navy.



THE BENDIX IGNITION ANALYZER GIVES  
ADVANCE WARNING OF SPARK PLUG FAILURE

**Result:** ADDED SAFETY

THE POINT OF NO RETURN BECOMES  
A POINT OF ASSURANCE

The Beaudin Ignition Analyzer actually *forwards* the time by predicting the remaining life of spark plug. With the Ignition Voltage Control the operator can determine the present efficiency of all spark plug and put the finger on any weakness in the system—even though it has not yet affected the operation. If the control reveals impending trouble, corrective action may be taken before material harm takes place. With an on-site installation of the Ignition Analyzer, the test can be made before an over-winter flight reaches the point of no return. By viewing the wave forms on the face of the scope and comparing with known patterns, the operator can quickly make the right choice . . . to return without mishap, to operate at reduced power and prevent complete engine failure or to postpone safely at crossing speed.

So, for maximum safety and operating efficiency it pays to make provisions for installation of a Bendix Ignition Analyzer on all your aircraft.

Detailed information available on request.



*Cuts Less—Does More.*

The Benefit Ignition Analyzer is available for either micro or portable personal installations. It can be used with either high or low tension igniters or battery systems. It is the ignition analyzer that one replaces spark plug before heating it wires . . . makes an efficient check of more than one spark plug at a time and does it so long, easy to read results . . . yet costs less than comparable analyzers.

Bendix

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HELPING AMERICA BUILD FASTER

#### **Key men in utilities get more done – with Beechcrafts**

**W**HEN the pressure on oil patch entities, companies and individuals are daily serving executives in those fields — by making their time count for more. Benchmarks reduce trip hours as much as 25%. Key men get more done. Power shutdowns are cut to the bone it takes to fit the replacement parts to troubled assets.



**AMERICAN AND THE REST OF AMERICAN BUSINESS**

## Washington Roundup

### Airplane Spending

Top Defense Department officials put the brakes last week on expenditures over \$100 billion of the defense program.

- They had countered Senate Appropriations Committee's black picture of lagging aircraft production with a 1981 picture of achievement. Output is up over four times the rate of two years ago.
- But when the new member of the Personnel Council of Economic Advisors, Robert Turner, went so far as to indicate that the buildup is about over, and above ready to start down, by reporting that expenditures have already "virtually reached their peak," Defense Department contradicted with figures.

The justifications for aircraft and related procurement—payments to manufacturers:

- The peak won't be reached until the middle of 1984. There will be some decline during that time, but expenditures will continue to grow.
- In the current 1983 fiscal year which ends July 1, expenditures, totaling an estimated \$5.5 billion, will be almost double the 1982 fiscal expenditure of \$3.5 billion.
- During 1983 fiscal, the year following the Korean outbreak, expenditures amounted to \$2.5 billion.

### Contract-Letting

An Air Force started off the 1983 fiscal year with a high rate of contract-letting. In contrast, last year lagged. In the first month of the year, July, USAF obligated \$3.9 billion for aircraft and related procurement. That was \$1.2 billion for the year. \$1 billion came over and \$1.1 billion new money.

• New obligated only \$331 million for aircraft and related procurement. It has \$5.5 billion for the year \$3.5 billion new, plus a \$5.1 billion cushion.

### USAF: More Command Recognition?

An Air Force is staging a drive for more recognition in joint command posts over the globe.

An Secretary Thomas Endteker launched the drive in a public address.

"The U.S. now has commands in major areas, commands in which elements of the Army, Navy and Air Force are represented. The U.S. also is part of international forces. So far the command posture has been largely in the hands of representatives of other services, whether those of the U.S. or of some other country; for the concept is still strong that the U.S. is a military arm and not a full partner in terms of responsibility."

That is an example of what no longer has to relate to fact. In the future, the U.S. will play a larger role in its alliances, with the dominant role. Its responsibility will be greater, not smaller. It follows that assessments of command must recognize these facts and that the rest of all nations, including ours, must be given their full share of command responsibilities."

This is the position of administration economists.

North Atlantic: North Atlantic Treaty Organization has three overall top commands:

- Supreme Commander Allied Forces in Europe: Gen. Matthew Ridgway (Army).
- Supreme Allied Commander Atlantic: Adm. Louis McCormick.

# AVIATION WEEK

## British Speed Empire-Wide Coach Service

- BEA plane air tourist system throughout Europe; BOAC to spread service to Africa and Asia.
- And the government, seeing the service as a prime defense aid, is strengthening the monarchs.

By Robert E. Blane  
(By Cable to AVIATION WEEK)

LONDON—The British airlines, reluctant at first to accept U.S. jets on large-scale routes, now say as they ought to said that then own plane flying government backing, present an expansion of travel service unmatched by any other nation in the world.

Government agencies and the two British airline monopolies are putting second to last in possible both a series of services including fast air freight and for strengthening the Empire's far-flung links of communication.

Here are the latest developments:

- British European Airways will introduce transatlantic coach [railed] tourist class in Europe by the London-Paris run Oct. 1 with four out 25-40% under current tariffs.

• British Overseas Airways Corp. supports its transatlantic trans-Atlantic coach service has had an unqualified success.

So Miles Thomas' BOAC chairman is negotiating arrangements to extend coach service to Africa and Asia.

• The British military has obtained out-of-field to the Central Empire for British worldwide operational flights.

Flight crews will be trained to fly "standard" type aircraft around the world and a selling strategy seems kind transport equipment from regular airplanes and military services to help them operate.

Fall scope of coach expansion in Europe, Asia and Africa was scheduled to be determined at the International Air Transport Association meeting in Geneva last week but advance word was that early January agreement were an prospect.

• British Regional BEA will operate London-Paris flights to extend agreement with Air France. BEAT's speed is required for further expansion of both BEA and BOAC transatlantic services.

During the first four months of its trans-Atlantic coach service between London-New York, British Midland BOAC has carried 17,500 passengers in 65 passenger coaches. Significantly, BOAC's Euro-Earl non-Atlantic travel service showed an increase during



MASFIELD Test a road for future.

using a turboprop coaches before the use of the piston Douglas, carrying 180 passengers on 360-mile service route. The present Douglas can be modified for 35 passengers on an air-coach version of traffic demands.

As more commercial equipment becomes available, Masfield believes British firms will be reduced even further. He prophetically believes that the future airline market lies in lower fares and higher volumes, bolstered by nonstop equipment! The rising cost of surface transport and its increasingly uneconomical equipment after a 1970 freeze for aircraft design, long it takes for the remainder of the trend price to catch up with surface transport, according to Masfield.

• Operation for Southeast-Asia, British's unchartered efforts are getting a greater opportunity to prove the value of low-cost air travel. During the past 18 months the British military has placed increasing dependence on the need to handle troop movements between the far-flung outposts of the Empire.

During the last 12 months a total of \$3,000 British troops were carried by the relatively to Africa, the Middle East and Gibralter. Official British sources now report that if a short \$12 charge per man to move troops to the Middle East, the cost would be less than the fare saved. The British military service has been extended recently to the West Indies and Singapore and further expansion is in prospect as the British government becomes increasingly conscious of the necessity to

more troops by air to meet fast-developing emergencies arising out of the cold war.

The second opportunity the members are exploring is a type of group travel service by which military and civilian groups in the Colonies and their wives and their dependents can leave to England. The popularity of that service, in which the members have sold all the airfares, has led the government to license British Colonial coach tours, with regular airfares and round-trip fares, equal opportunity to buy.

**Stake Back**—The first Colonial coach year (1961) originated that summer on the London-Naples route, with weekly service provided by no less than 100 members. Groups booked solid for months on the future. Extension of the Colonial coach license for the rest of the Europe appears certain.

But now the members face the same basic problem as the British corporation strike: getting sufficient equipment to handle traffic using small demand factors at low cost air fares. The government is still looking around hand. Colonial and York from airline stocks, but the members want separate transport equipment and are permitting the necessary financing of aircraft purchased under a new plan now available for BEA and BOAC. The members also emphasize that this is cheaper than building a large system; air transport service was of great value for fighting the cold war.

An office in and out of the United Kingdom doubled during the past year and official estimates say that it will be doubled again in 1963. By January of this year air travel looks like a gone undergrowth; if so much as giving free rice to develop and if adequate financing of new equipment is arranged.

## MATS Lift Supplies Top-of-World Base

Military Air Transport Service, long work, decided it has been operating a long-range Arctic flight to help build and supply the top-of-the-world air base which USAF has established in Davis-Monthan, Cleveland, since 1960, north of the magnetic North Pole, 930 mi. from the true North Pole.

The base, located near the small Eskimo settlement of Thule, can be supplied by air only during the year.

In preparation for the first open-air supply year, MATS' adult staff numbered more than 1,000 construction workers, food, prefabricated tents, tools, generators, power plants, tank trucks to carry water, a large crane and road graders to the base. A 10-ton C-47 cargo plane was flown in to enable planes to move all supplies landing.

► **Log 30,000 Hrs.**—A single plane of more

than 4,000 additional construction workers and additional equipment came to be air transported July 1961, and the job of continuing deliveries on a very mixed basis was maintained in view, following disruption of the last of the cargo ships early in September to avoid being trapped in the ice.

Using C-47s, C-54s, 450s, and C-123s, and Boeing C-97 transports, MATS had logged a total of 30,000 flying hrs. as of Aug. 1, 1962, carrying nearly 25 million lbs. including 1916 passengers. The C-54s carried freight in two tons, while the larger planes averaged 12-ton loads. Route flown was Westover AFB, Mass., 930 mi. to Goose Bay, Labrador, 1,033 mi. to Spudberon Air Base, Cleveland, and 760 mi. along Cleveland's west coast to Thule, a total of 3,467 mi. for each roundtrip.

## British Interest In Australia

(By James H. World News)

**McLennan**—The Anglo-American Large Aircraft Works Experimental Establishment at Salford promises to become a focal point for British research and production in guided missiles and rockets.

A number of top British aviation firms are working on plans to establish plants near the hot facility, mostly Fairey, Bristol, Vickers-Armstrongs, Armstrong Siddeley, Armstrong Whitworth, English Electric and de Havilland-Pepple Co. Ltd. It also appears likely that three firms encompass production of aircraft as well.

## Seeks New Service

Hawker Siddeley has asked Civil Aviation Board for permission to commence service to a new airport to be opened south of Kembla, in the heart of the cattle marketing region on the island of Tasmania.

AVIATION WEEK, September 22, 1962

Before work on the major base started, a flight strip had been established at Thule as 1948, to support Davis-Monthan weather stations that farther north.

► **Steady Tasks**—The arctic operation involved major problems in supply and maintenance of the station as snow and many watermain problems for the planes used in the lift.

Tours with staff unloaded in the tents for operation on snow and ice had to be used.

Brakes were checked for operation in temperatures as low as -10°, oxygen systems were checked for use after being exposed to the cold, light insulation and heating gear were stored, were modified along with many other items. Maintenance of the first part of station had to be accomplished when the parts were available. Long hours in low temperatures were spent by the maintenance personnel to keep the planes moving.

But despite precautions, maintenance and supply continually hampered the operation from bases, big jobs in the way of C-54, quick trips, dead batteries—some of them never overcame problems regularly occurring in cold weather, but still within enough to keep it moving on the ground.

Operating temperatures between -23°F and -40°F and with limited hangar space for keeping engines warm, planes were stored at an aerial station, one side at a time, while alternate engines were swapped. Crews and passengers remained aboard while launches were brought on and flight distances completed.

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AVIATION WEEK, September 22, 1962

## F-101 Voodoo Into Production

AF orders "substantial" number of McDonnell long-range fighters; report of second-source supplier denied.

By Ben S. Lee

Air Force has announced contracts with McDonnell Aircraft Corp. which order the F-101 long-range fighter "Voodoo" long-range escort fighter into major production at St. Louis.

The F-101 is a revised version of the 700-mph XP-88 Voodoo, a "workhorse" but unproduced number not built to equip Strategic Air Command bomber escort fighter squadrons (Aviation Week, Sept. 4, p. 11).

While performance and specifications remain under security wraps, the F-101 is said to be considerably larger and heavier than the XP-88 prototype. Power plants of the proposed F-101 are two Westinghouse J75-W-15 turbojets each rated at 3,600 lb thrust. But reports say that the production version of the F-101 probably will incorporate the Allison J35-A-6 or the General Electric J75-GE-3, both of which are rated at the 10,000-lb-thrust category.

► **The Wings**—Progressing of the F-101 out of 1955 funds (Aviation Week Oct. 29, 1951, p. 16) followed a long and stormy procurement career. Evaluation of its predecessor F-88 had originally been projected for early 1949. First, let by the necessary effect of that year, it was thrown from that particular project.

Then, in June of 1950, Air Force canceled evaluation of this fighter by terminating a production contract to the winner of the competition. The F-88, in competition against the North American F-93 (F-86) and the Lockheed F-90 at Edwards AFB, Calif., changed the undiplomatic winner, raising requirements set forth by SAC for more seats.

But, meanwhile, was in Korea crippled and Air Force decided to go to heavier emphasis on current production fighters and light bombers at the expense of the SAC's main fighter requirement. So, proposed production of the F-88 was again shelved.

Last year, however, as the inter-national scene worsened and the decision to build to a 145-wing fleet, was reevaluated, a newly revised version of the F-88 was presented to the Air Force to meet expanded SAC long-range fighter requirements.

► **Saved Saenger**—With official release of production contracts across public board, both Air Force and McDonnell officials already are drawing that saga fiction with a large smileable smile-

increased from \$15.88 to \$19.28. The capital stock and earned surplus increased from \$10,598,654 to \$13,175,727.

With the number of personnel increasing from 3,226 employed on Jan. 30, 1961, to 11,255 on Jan. 30, 1962, the monthly manufacturing dues required in fiscal 1952 payout at \$4,560,245.

## Pilots Face New Test On City Ordinance

At Los Pilots Arms, last week called for Civil Aviation Administration competence in seeking a better understanding of local airport problems and their relation to the overall ultimate commercial picture of El Paso, Tex.

The appeal is to bring out ALPA President Charles E. Elmer's informal assessment that El Paso's city council had passed a local ordinance regulating operations procedures of airline planes at the international airport there.

► **Regain Flights**—ALPA contends that the federal government has taken over regulation of interstate air commerce to the exclusion of local agencies and that therefore, ordinances such as that at El Paso can lead to an "unfriendly" national situation unless steps are taken to get them removed.

Specifically, the El Paso ordinance, "designed to keep the airport inferior to other passenger and operations, to reduce planes of planes weighing 20,000 lbs or more to 10,000 lbs when starting engines on the ramp and the airport administration building." Non-complying pilots will be fined up to \$500.

The ordinance was suggested by the airport manager, Charles Moore, according to an El Paso newspaper account.

Moore has been quoted as saying American Airlines had opposed a previous policy requiring use of flap to keep down drag at the airport and to reduce propeller wash dangerous to passengers.

► **Financial Report**—Sales during the fiscal year ending June 30, 1962, the company says, were \$83,745,200. "On these sales the company also grossed \$13,864,643, equal to 54.4% per cent above those after deducting \$6,954,144 contribution to occupancy facilities in addition to normal depreciation. The ratio of earnings after taxes to sales was 3.75%, as compared with 4.35% for the 13 years since the beginning of the company." Regular dividends of \$1 per common share were paid during the year. Of the 1962 earnings \$21,382,273 were retained to continue the growth of the company, and the book value per common share

increased from \$15.88 to \$19.28. The capital stock and earned surplus increased from \$10,598,654 to \$13,175,727.

With the number of personnel



RATO ASSISTS CF-100'S ORENDS

Canada's CF-100 Canuck, long range all weather interceptor, gets a boost from its RATO units as it takes off at Upstals, Ont. where the plane is being tested by RCAF. Painted by two Quebec fitters, Canuck

with RATO unit was able to take off with full load of fuel and mission payload plus two LORAN-C bands in less than half the normal takeoff run. Photo and Orenda engine are made by Avco Canada.

AVIATION WEEK, September 22, 1962

AVIATION WEEK, September 22, 1962



sue in Lyndhurst, Va., which if Avco's side groaner would not be acceptable due to its having no load as a CAA answered that although that would avoid the evils of evasion had cost, American Oil Co. still does not recommend use of that type gas in aircraft engines.

An powered plane from the 65-hp. Cub to the 145-205 hp. Beech and Navion class generally spend 50 Gads motor gas, while the 205-hp general Lycoming in the Navion II requires 91/98 Grade.

## Pressure Forces AF Action on Spares

Under congressional pressure to reduce spending on spare parts, equipment, the Air Force has set up a committee at Wright-Patterson AFB to recommend appropriate actions.



SWEDISH DELTA RESEARCH PLANE FLIES

Designed and built in only 15 months, the Saab-218 delta wing is now undergoing flight tests. Compared with other delta, the 218 has wings of extremely low aspect ratio. Center of gravity can be modified by pumping liquid between the main tanks at nine and 10 ft. It reportedly is paving the way for design of a larger all-weather delta-wing fighter being considered by the ministry. The craft is powered by a 1,950-hp. Pratt & Whitney J58P afterburning turbofan.

Headed by Harry King of Bridgeport, Conn., president of Mission Line, Inc., the committee experts in spare recommendations unanimously to reduce USAF's current year program for spare procurement and to make fuel recommendations regarding the spare system by the first of the year. King has broad business background, including experience as oil, steel, copper, aluminum and oil wartime government agencies. He has no previous experience in aviation.

► **Funds Reduced**—Pressure from Congress to cut expenditure for spares was generated by University of Air Force General Culbertson's testimony that "60 cents of every dollar spent on original equipment goes into spares." And this is an area in which we felt we must do something," to economize.

The House Appropriations Committee cut funds for the 1953 fiscal year for aircraft procurement by \$40 million.

► **Background**—Coughen did not increase the Naval Aviation spare program this year. But it probably will next year, as research and new work to commence on the defense budget.

USAF presented the background on its spare program.

► **After World War II**, USAF spent too far, events later proved, on disposing of 50,000 aircraft parts on hand and then trying to buy more.

► **With the restarting of the design of program and the outbreak of Korean hostilities**, USAF found itself short on spares for its World War II types "and we are now buying certain spare parts to support such aircraft in the B-36, B-52 and F-86 in Korea at consequently high costs."

► **Promotional money** was not allocated during the five years following the war that spare purchases were held in a minimum and the question of possible over-purchasing was "academic."

► **No planes procured since 1949** have been declared obsolete on the active USAF inventory.

► **No plans** are stacked for a planned review every year or two. These are with an estimate of the value of the spare engine and parts inventory which would become subject to disposal. Germany \$8-10. \$14 million. Canada LC-426, 562,691. Paper L-47, \$404,175. Republic F-47, \$615 million. North American F-82, \$31 million. Bock T-11, \$11.9 million.

The Boeing B-17, USAF reported, is programmed for use through mid-1955. Spares now on inventory to support B-17s include parts valued at \$20 million and 750 Wright R-3350 engines representing an investment of \$6.7 million.

## New Air Forces

(McGraw-Hill World News)

Bogota-Avianca, the Colombian government sponsored carrier, has lowered its freight rates since 1952 and simultaneously applied passenger fares approximately 31%. Beginning Oct. 1, the carrier will begin a limited operation to New York at fares 50% lower than regular service.

EEMCO

# technical bulletin

## High Performance—Compactness Achieved in new EEMCO Motor for Missile Application



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## Why British Push the Delta Wing Design

- You can get low wing loadings favored in Britain, without high drag, only with swept or thin wing.
- But thin wing production creates new problems. A filled-in swept wing meets all demands.

By David A. Anderson

[By Cable to AVIATION WEEK]

**FAR-BEYOND** Britain didn't get these first delta wings, but she got them with the rest. And that carefully considered determination to stress the postwar configuration will have a profound influence on British design for years to come.

Four different transonic aircraft flew at the Service's British Aircraft Contractors display this very early in an accident-prone-a fifth from showing. With these and six more deltas

known to be in various stages of development here, a wide range of military types has been covered including guided missiles, interceptors, reactors, all weather fighters and large bombers.

Interest in the tops heightened when Avro announced except of a good-suction delta-sailplane estimated at 20 percent better than its model 698, no large bomber had yet in the background fleet to talk of a delta wing transport.

### The Planes

Herewith presentation in the delta program items from Hawker Siddeley

Group companies. They produced the star of the show—a gleaming white Avro 698 (photo above)—and air two and five. The little red 707A and the blue 707B. Avro's 698 bomber first flew Aug. 30. Outside of long snowshoe flights, the flight was uneventful and Pilot Roland Falk spent 16 min. in the air.

The 698 is about three times the size of the 707. Wings span 100 feet, chord 106 ft., length 124 ft. Five prototypes are quarter of Rolls-Royce Avon 500s. British Oh sagen turboprops are to be the engines in the production version.

► **Lavas**—Central feature of the big bomber is like that of the 707, but the cleaver is more powerful. Trailing edge surfaces are split upwind portion is elevator, outboard ailerons. No flaps are used and there is no horizontal tail. Two are grouped close in by the fuselage; an aileron on wing leading edge like those of the 707A; a smaller's midbox set with a boundary layer separator

From These (Avro 707A, top; 707B, below)



Came This (Avro 698 bomber)





AVRO 707B. In this altitude, shows clearly how it was used as a flying scale model to test design features of the ...



AVRO 690 bomber. While configuration of two planes is generally the same, the 707B has six intake at top nose of fuselage.

engined. Nowhere! has dual fins, main gear a bags type with eight wheels per leg.

Eight air brakes are fixed, four above and four below the wing, panel on each side. There is no reversion of aircraft or powerplants for landing. If a tail fin, however, that perhaps the British are going to depend on speed and altitude for protection.

Bands have an extremely long and quite wide, providing huge capacity. The cockpit equipment includes ejection seats for the crew.

► Power and Potential—Gloster Air

spite, another company in the Hawker-Siddley Group, demonstrated its G.A.S. (Gloster) Britain's first two-engine delta fighter. Designed for all-weather interception, the Javelin is equipped with avionics equipment. Two Armstrong-Siddeley Sapphire will thrust the plane at supersonic speeds.

Gloster claims the plane is more maneuverable at lower speeds than any fighter since the biplane era. This characteristic, coupled with the carrying capacity and the development presented in both aircraft and engine, let Gloster to state that "... the Javelin offers

definitely more than any other fighter."

The Javelin is about one-half the size of the Avro bomber, with a span of 52 ft., length of 57 ft. and overall height of 17 ft. It mounts a horizontal stabilizer on a gathering of four struts, on a low-set tail with vertical fin and rudder. A large fairing at the top of the fin houses a unique parachute.

► How They Fly—Roland Falk and Bill Waterton, test pilots of the 690 and Javelin, respectively, agree that if a pilot can fly the Avro it could fly a delta. Avro insist he can fly a delta. Falk has been flying the big bomber



WING PLAN of 690 bomber is clearly evident in this view. Inboard control surfaces are elevator, outboard are ailerons.



RAF VICKERS VC10 gives deceptive appearance of smallness. Dark lines near leading edge are tail booms.

alone, although there are accommodations for other crew members.

Judging by the Farnborough exhibition flight characteristics of the delta are normal and maneuverability exceptional. As the plane passed through successive dives, and Falk and Waterton began to let out their mouths, noise, performance was even more amazing. Farnborough spectators noted how the big bombers ran away from the little delta and ended when Waterton landed the Javelin off the runway in a tight turn after takeoff.

► Others in Works—Avro now is de-

veloping a series of two-seat delta transports for other crew members. Judging by the Farnborough exhibition flight characteristics of the delta are normal and maneuverability exceptional. As the plane passed through successive dives, and Falk and Waterton began to let out their mouths, noise, performance was even more amazing. Farnborough spectators noted how the big bombers ran away from the little delta and ended when Waterton landed the Javelin off the runway in a tight turn after takeoff.

► Aviation Paul's PR111, which gave a convincing demonstration of flight performance last year, failed to show this time. The firm's newest PR112, basically a PR111 with the addition of a longitudinal all-variable tail mounted on a modified rearless tail, crashed a few days before the display.

## The Theory

Behind the British industry's apparent preoccupation with a single slab-like legend thinking which evolved the delta as the type most fitted to do

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### Three Views

of Gloster Javelin show the general lines of the delta fighter which will be served by the USAF over Europe and the Asia delta border. (Photos of Javelins on preceding pages, more photos of Javelins following. Story on both planes begins on page 21.)



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JAVELIN turns and climbs at altitude in astonishing display of its maneuverability.

turn jobs. Aero planning began in 1947 since the Air Ministry and the Ministry of Supply asked the company to study specifications for a heavier fighter. These studies convinced Aero that the delta front was the only shape which would meet the tough requirements of the specification.

► **Pilotless and Autonomous**—Generally, Aero claims the delta is the answer to the problem of producing a high-speed, long-range, load carrier. Specifically, most advantages for the type stem from other interesting problems in area dynamics requirements.

Friedmann, British aircraft designer, has favored low-wing loadings. Even jet engines and high-speed flight have never dictated them from that position. But low-wing loading means long wings, which in conventional aircraft is a high drag. There is still some way to reduce drag, however, and one change in design, cambered wing edges and use of speed devices make a thinner wing.

Stainless steel, which reduces aerodynamic thickness in direction of flow, is one way to do the job, a very thin straight wing is another. But the wing has to be strong to take loads of high-



BUSINESS END of Javelin carries role and armament. Solid 16, speed behind pilot's canopy, is reckoned for solo operator. Plane is released through underwing ports.



JAVELIN TAIL design reflects special problems of delta craft. Bi-directional tail, needed for maneuverability, has controllable incidence and normal elevators.

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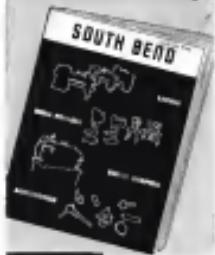


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BOULTON PAUL F. 120 tested before it could be displayed publicly at Farnborough

speed flight, and still so that flutter does not develop. The wing may have its very fast, landing gear and equipment. Air intake may cut into the trailing edge.

These requirements add up to a wing which is thin, yet thick and highly swept. Currently, the only configuration which meets those contradictory needs is the delta wing.

A delta wing can be made structurally thick, and therefore will fly satisfactorily from because thickness chord ratio is inherently low. Leading edge during service to reduce further the aerodynamic thickness. The delta can be thought of as a sweeping plan with the trailing edge position filled in.

One other big argument for British acceptance of the delta wing is that fabrication is an industry capable of afford expensive machinery and tooling. Standard airframe construction, with frames, skin and stringers is directly applicable to triangular layout whereas outboard of the wing requires separate enclosed house machines. Sir Roy

Avon decided, however no particular problems in building deltas. Avon's estimate, says Sir Roy, showed that the 950 could be built with not more than 10% more than required by World War II Avro Lancaster four-engine bombers.

► To Prove a Point—For those reasons, Avon decided the delta was fit for a bomber, and began design studies. Avon's first choice for the plane was straight revolutionary. Sir Roy says, in the Ministry of Supply ordered a series of three Avro 767 research planes to substantiate the claims. Flight tests of these planes, beginning in the year of 1949 and still continuing, has produced a wealth of aerodynamic data of the type.

Flight characteristics and powerplant performance were pre-proven by Royal aircraft craft. There also was a decision to use the piston engine.

So far, no detailed technical decisions to lock delta briefly has been made in British aviation. It may prove in important in other divisions to produce two similar low wing intermediate fighters which later were named the Phantom and Spitfire.

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## manometer

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NAMR BOARD, left to right: Herbert C. Thomas, Ernest D. Fer (chairman), John E. Epp, Fred H. Hussey, and John A. Lounsbury



NAMR OFFICERS Secretary Ruth Gifford, President Louis J. Scully, Treasurer Robert G. Stoff. Vice President D. D. Endicott was absent when photo was taken.

## Growing NAMR Broadens Scope

Dayton representatives group, hardly a year old and already largest of kind, now seeks national rule.

Formed a little more than a year ago in Dayton to handle the needs of a specialized group of representatives of the Air National Guard, the National Association of Manufacturers Representatives already is the largest organization of its kind in existence and is holding fast recognition as the spokesman of representatives in all types of industry.

Its membership is approximately 218 and includes representatives in Washington, New York, Cleveland, Chicago, Detroit and the West Coast as well as in Detroit.

Although its future aims are national in scope, NAMR right now is still

pretty much of a Dayton operation. That is where most of the organization business is done and that, naturally, is where most of the problems lie. NAMR's job, and its future growth, have to be assessed against the background of the role of a representative of Dayton.

► What a Rep. Dean-Wright Field representatives, whether representing large or small business, perform the following functions for their clients:  
• Select military products suitable for manufacture by client.  
• Register firm on score lists.  
• Keep abreast of new developments

- Maintain liaison with research project engineers
- See all new procurements, and procure full facts, specifications, and drawings if not already forwarded to firm
- Drive into previous purchase history of item to guide firm in bidding. Also, keep up on production
- Follow up bid and proposals, and when firm is to start
- Find cost accurate for purchased items, and find suitable subcontractor
- Advise client, and assist in any cost/bid negotiations
- Advise client regarding accounting procedures in segregating costs for price acceleration and negotiation
- After contract is obtained, maintain liaison with buyer and project engineer regarding any subsequent changes, production problems, inspection problems, etc.
- Follow up qualification test samples engineering laboratories
- Expedite payment of invoices by firm's office
- Keep tabs on large prime contracts awarded, regarding possibilities of obtaining a subcontract
- Keep liaison fresh in buyer mind, to never being overlooked on my procurement.
- Carry in higher authority an appeal on any arbitrary decision made at lower levels, which seems unjust or potential to classify interests and the "best interests of the Government"
- Legitimate Service—Courtesy to all serve publicly in several Washington areas, the Wright Field operations, in addition to the regular military commands, and on political level, in the sense that there is very little politics involved in most Air Force procurement. On the contrary, he performs a legitimate service; otherwise would not interests be so anxious.

He performs two functions. He is supposed to keep his eyes open for new business, and he is open for anyone the business already on hand. Representatives' feet generally are gained in the size and trading activity of the account. On this issue, he gets a good idea about what you are doing. He looks

for opportunities in or near Dayton either through his own experience or through contact, engineering or supply with the Air Force, or at manufacturers' organizations.

Many possess engineering degrees of one type or another. But the principal stock in trade is a general savvy of the many specifications attendant to purchase of equipment and services by AMC.

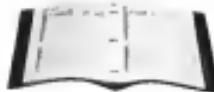
► New Status—Two recent developments have pointed up a new status for reps.  
• They are recognized legally by the Renegotiation Act which provides that

# "special" treatment for standards



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to the several  
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individuals—as well as companies—can be subject to reprimand. Any representative who turns \$25,000 or more from his service to government contractors is subject to the removal of the job. • Safety in general is held in growing esteem by AMCI officials. Certainly part of the feeling is due to the National Association of Manufacturers Representatives. Voting members of NAMR recently were asked by top AMCI officials to offer advice whenever asked by new procurement managers, particularly officers posted to active duty. Although most of these officials will have had past procurement experience, procedural changes since their previous tour may handicap them while they "bank" into the job again.

► Pending Victory—One accomplishment of a posting, let's say, and continuation beyond the highway from the Reception Center to Area B. The list is identical in use, restricted to ANs and continuations and close enough to the Area B contract to allow a lengthening extension.

Another recent development was the decision to post late bids in the Convener's Relocation Office. The practice had been stopped, whether a hindrance or a plus, during adverse weather, many legal bids are late by reason of bad factors. If the postmarks indicate that the bid should have been delivered to AMCI under normal mailing conditions, it is declared that it is an acceptable late bid.

But here is the important point: the posting of late acceptable bids, a responsible bidder could attend the bid opening, hear his bid read as low, and yet not know that he would get the bid because of the possible late bids which might be under his quotation.

After a complete exchange of comments on the practice, the posting of late bids has been initiated.

Although responsibility at NAMR is still mainly a Director's function, many outside plant officials believe and pass their business trust to be based on the ratings of the AMCI and Wednesdays in the Van Cleve Hotel, Dayton.

► Officers—This year's officers:  
■ President: Louis J. Sciarra  
■ Vice President: D. D. Brashler  
■ Treasurer: Robert C. Sibley  
■ Secretary: Max Ruth Gorchak  
■ Board of Directors: Everett D. Faw (Chairman), Fletcher C. Thomas, John E. Eppa, Paul H. Horsey, John A. Loveland

► Committees: AMCI-WADC liaison, Russell F. Herde; press and entertainment, Grant V. Dillon; finance, D. D. Brashler; rules, Everett D. Faw, membership, Kurt W. Schmidt; public and facilities, Fred J. Kornell; news, radio and television, Ernest C. Desautel.

AVIATION WEEK, September 12, 1959

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MODEL 500P, shown, has been used extensively as a rapid temperature indicator for cold testing on the "Fighting Diamond" and other aircraft production lines. It can measure temperatures from -40° to 1200° Fahrenheit with a 1/2" liquid-filled probe and is fully calibrated and compensated. Made in rugged bolted cases, with suitable thermocouple materials.



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AVIATION WEEK, September 23, 1959

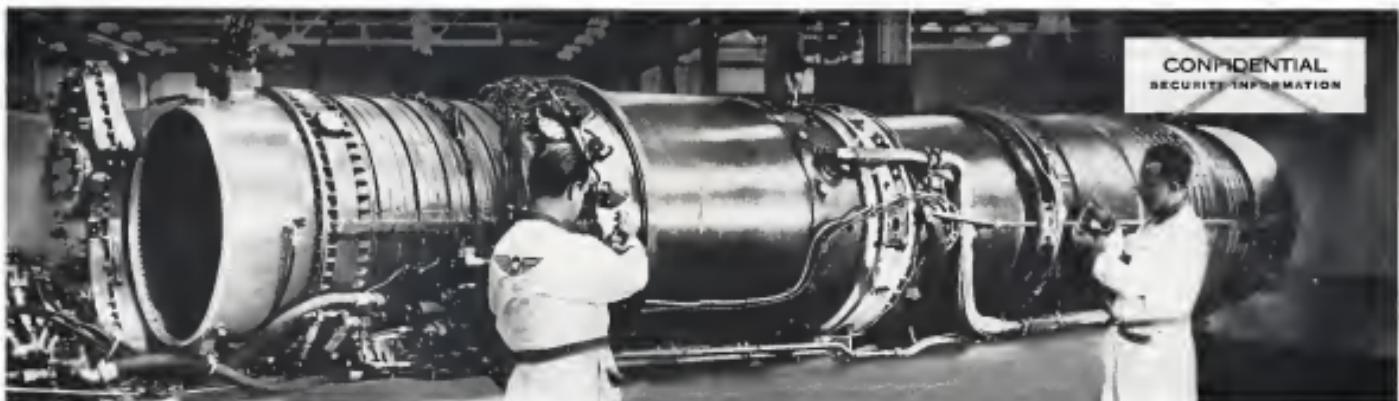
36







CONFIDENTIAL  
SECURITY INFORMATION



## U. S. Navy and Westinghouse reveal

## world's most powerful jet engine



F4D "Skymonkey", built by Douglas, is being prototype-tested with an earlier model of the Westinghouse J40. Production versions will be powered by the new J40 or by four developments of this engine.

F3H "Demon" will soon be in quantity production. It was especially designed by McDonnell to fly under the tremendous thrust of the and the even more powerful Westinghouse J40 engines of the future.

The United States Navy and the Westinghouse Electric Corporation have just qualified the world's most powerful turboprop aircraft engine . . . the J40. It develops more than 23,000 horsepower at flight speeds. The new engine has successfully completed the Defense Department's grueling 150-hour qualification test and is now approved for quantity production.

This single engine is two and a half times as powerful as the combined four engines of a B-57 Superfortress. In weight, however, is only about 3500 pounds . . . less than that of one of the B-57's engines and propellers. The thin engine is twenty-five feet long and about forty inches in diameter. It produces more thrust per square foot of frontal area than any other turboprop. Like all Westinghouse engines, it is of the cross-flow or straight-through design.

As delivered to plane manufacturers, for production aircraft, it will be the first engine to provide constant speed drives for airplane accessories as an integral part of the engine . . . providing substantial savings in plane weight and space.

Two new Navy fighter planes will be powered by this new jet engine which was designed by Westinghouse in co-operation with the Navy Bureau of Aeronautics. These are the McDonnell F3H "Demon" and the Douglas F4D "Skymonkey". Even more powerful versions of the J40 are being developed for these and other aircraft.

Westinghouse, builder of the first American-designed jet engine, has been working with the military services on turboprop design and development since the day after Pearl Harbor. Behind the glamour of these jets is the intense effort of hundreds of scientists and engineers. Progress in jet propulsion is not easily made. What seems like insurmountable obstacles sometimes arise. Like other companies, however, Westinghouse has persevered and successfully met such situations.

Westinghouse is investing millions of dollars and man-hours to help keep American jet-propulsion leadership. Jet engines are produced at the South Philadelphia and Kansas City plants of Westinghouse. Westinghouse Electric Corporation, P. O. Box 866, Pittsburgh 30, Pennsylvania.

1463

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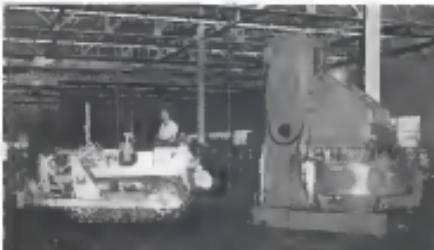
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MULTIPLE SPINDLE shell press is incorporated in new location at North Haven P&WA plant after quick trip from East Hartford

### P&WA's Move-and-Produce Plan

A new plant for production of jet-engine casings is getting the finishing touches by Pratt & Whitney Aircraft Engineers. This latest move in P&WA's expansion is at North Haven, Conn. (MATERIALS WIRE Feb. 19, 1958, p. 21).

Quick Timing—North Haven is a combination research and production facility. As soon as Service does its finishing touches, production machinery is cut from established lines at P&WA's East Hartford facility, and then they are moved to the North Haven factory with night flights, electronic signals and telephone relays supplying the finishing metal lathe rooms.

Where the machine is in the middle of an engine part job at East Hartford the work is moved right along with the machine and finished at the new location.

Plant Data—While the North Haven plant output potential will be confined to P&WA's piston engines, turbine production here is still a possibility. Even now, one unit of the shop has been set aside as a short metal fabrication parts for experimental gas well blowers.

First site correspondence 700,000 sq ft, with 500,000 sq ft for production. The setup will accommodate 18 departments.

Machining tools involved in setting up the new plant total 1,338. First production machine was installed just 2 hr last week, was run in the new plant the same day. Construction equipment had one scheduled for the move, is due to begin operation in October. Up to 4,000 employees are being transferred or hired and trained. Leslie P. Doty, who previously headed the

Southington operation, is plant supervisor.

Pratt & Whitney are using some of the close-to-home resources in North Haven involved.

Completion of construction and semi-preparation to receive machinery.

• Drawing department layout detail plan—exact spotting of all machine tools, broaches and measuring equipment.

• Making plant floor to compound with broad blueprints.

• Transportation of machinery, equipment, raw material and semi-finished parts.

• Spotting machinery and equipment so that subsequent installations won't be hindered.

• Machinery installation and first runs made for checking.

• Conveniences of manufacturing operations.

Purpose of this closely controlled move plan stresses one prime objective—that the move won't materially slow production as the department shifted to the new plant.

### Frauenthal Merges

Kendall Engineering Corp., Melrose Park, Ill., has bought A. Frauenthal Corp., makers of large and rugged pressure vessels, cylinder grinders and bearing and tunneling machines. The Frauenthal company was the original venture of Kaydon's founder, A. Sheldon Frauenthal. It is expected that management, engineering and production facilities will be integrated to boost efficiency under the merger. Total employment of the two enterprises is slightly less than 500. Recently Kendall brought out a new small grinder with table sizes from 30 to 60 in. diameter.

Frauenthal's products include large pressure vessels, cylinder grinders, tunneling machines, and bearing and tunneling machines. They also have X-ray inspection, adequate and efficient production facilities of Frauenthal THERMOSWITCH units meeting in increasing quantities.

### Fairchild Flying Boxcar Uses 32 Thermoswitch Units



**IN TRIP C-119 FAIRCHILD "FLYING BOXCAR."** hot air heat to the interior maintains and protects aircraft-icing protection for flying and cold surfaces. Right and bottom producer the hot air which may be maintained at a constant temperature. That job is effectively handled by 32 Fairchild THERMOSWITCHES controls the heat to each heater.



**QUADRATIC PRODUCTION** of Fairchild Republic Heater Controls is shown in this photograph of a massive assembly line of thousands who make up the assembly line. They also is backed up by rigid quality control methods which include X-ray inspection, adequate and efficient production facilities of Fairchild THERMOSWITCH units meeting in increasing quantities.



**CLOSEUP AFTER TESTS** of a series of switches, Fairchild THERMOSWITCH units are used in aircraft heating and cooling systems. After three years, Fairchild proves their reliable performance, simple design and low cost. These Fairchild temperature control devices are especially developed for applications subject to severe environmental and operational conditions.



**CUTAWAY VIEW** of Fairchild THERMOSWITCH rugged thermostatic-electric contacts. The temperature-sensitive unit consists of a ceramic resistor with a temperature sensitive element which undergoes the hysteresis effect. These contacts are compact, highly resistant to shock, vibration and extreme temperature conditions. For complete data on these and other Fairchild aircraft controls, write FERNWAL INCORPORATED, 125 Pleasant Street, Melrose, Mass.

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**THERMOSWITCH®**  
Electron Temperature Control and Detection Devices  
**SENSITIVE... but only to heat**

# What every pilot should know about MICRONS

(Psst! What you don't know can hurt you!).

"And what?" you ask. "It's a micron!"

Answer: "Microns" has two definitions, and you'll want to know them both—the first to acquire your friends, the second to keep out of trouble. Here they are:

1-A micron, scientifically speaking, is a particle having a diameter of 0.00001 inch. Engine manufacturers warn that particles larger than 50 microns in diameter can be injurious to your engine. Four particles of this size alone would have to get ingested before you could even be aware that you had taken in even if your latest CAA physical shows that you have 20-30 vision.

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But when those invisible particles pass into your engine—watch out! They can cause damage or reduce wear. They could even cause engine failure and a forced landing.



## How to trap the little mice

How can you stop these particles—keep them out of your engine? Not with fine mesh screens. And certainly not with ordinary filters. The only solution is to force the gasoline through specially designed filters—just ahead of the gasoline line—before it goes into your tank.

So that's exactly what Gulf is doing for you. Gulf has installed filters on its Aviation Gasoline dispensing equipment, designed to completely remove all particles 10 microns in size or larger. From now on, for the sake of your engine and your safety, go GULF...go gasoline that's refinery clean!



## How do they get in?

They get into your engine with the gasoline—regardless of the brand you use. No matter how carefully it's transported from refinery to storage, gasoline can't help picking up various dust particles, including sand and rust.



Gulf Oil Corporation...

Gulf Refining Company



NOW...to a micron-wise audience, Gulf announces...

MICRONIC FILTERING  
on Gulf Aviation Gasoline  
dispensing equipment...



your assurance of  
**'REFINERY CLEAN'**  
Gulf Aviation Gasoline!



# AVIONICS

## New Ignition Better, Yet Cheaper

Scintilla TLN-10 for jets is not only more effective, but is lighter and simpler than its forerunners.

By Philip Klass

Reader's Scintilla Magnetic division has pursued the familiar aviation trend of obtaining improved performance at the expense of weight, complexity and cost. Its newly announced model TLN-10 jet engine ignition weighs only 7 lb., yet gives more engine starts than former units under adverse conditions, including flooded or half-cut plug holes.

That's a claim which shows how briefly the new ignition stacks up against the previous model TEN jet. Scintilla preferred for the Alenia 115 aircraft used on P-100s and early F-100s.

• Lighter weight: 7 lb. vs. 35 lb.

• Hotter spark: 30,000 w-v vs. 5,000 w-v.

• Lower voltage: 1,000 v vs. 15,000 v.

• Fuel saving: Capable of firing plug with 100 lbs. less leaded gasoline per 500 miles maximum for the TEN ignition.

• Lower cost: Roughly \$550 vs. \$1,000.

► Looked Like It: At first, webbing ignition design looked like a step backward with ignition design problems associated with piston engines.

• Critical timing of spark to cylinder position was eliminated.

• Jet ignition required only intermittently since jet burners were ignited, the engine could self-supporting except in the event of flame out.

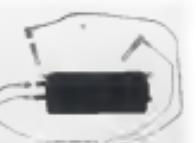
But it didn't take the military aviation and ignition designers long to realize that gets bad their own penalties, and extremely difficult, ignition problems.

► Jet Ignition Problems—Unlike the piston engine, where short fuel-to-air ratio exists under stable conditions, the jet ignition designer found himself trying to ignite a very cold and overheat fuel-air mixture without cooling the spark plug to a temperature of 350° F./sec.

A delay in engine "light off" permitted unburned fuel to accumulate.

When finally ignited, this excess fuel gave a "hot start" which often damaged turbine blades.

Or, if too much fuel had entered the burner, it had to be cleared before a new start could be attempted. (This latter problem has been at least partially solved by electronic engine control units going into use as newer aircrafts' powerplants.) Furthermore, fuel and oxidizer needed



Low cost, light weight Scintilla TLN jet ignition provides better spark

the plug, or carbon accumulated in the plug, providing a low resistance leakage path for ignition energy.

► New Approach—Using an adaptation of piston-engine ignition techniques to suit its then current needs, Scintilla set out to find a broad new approach to the special jet ignition problem.

The search was handicapped by the fact that the electric spark ignition system is not well understood at this theoretical stage; therefore there are at least two valid approaches.

However, Scintilla established two criteria for satisfactory spark ignition which were compatible with either theory. These were:

• Fuel mixture must be mixed to some critical temperature.

• Ignition, when it occurs, takes place in less than 5 microseconds after the spark reaches its maximum power level.

Scintilla thus concluded that the amount of energy (quantity of heat)

in the spark is less important to one could generate than spark duration time. The weight of that portion of the fuel-air mixture which needs to be ignited is already very small, as is the specific heat of the mixture.

Scintilla's light tests confirmed that only a small fraction of one Btu is needed.

► Time and Temperature—Scintilla has made new ignition development on the philosophy that other factors being equal, the longer the time of ignition, the greater the intensity of the spark, and its duration. The shorter the spark duration, the higher the spark temperature. (Expressed another way, spark temperature depends upon the power (enthalpy) expended in the spark.)

One way to increase spark temperature is to increase the current flowing through the spark. However, because the resistance of the spark goes down as the current goes up, only 40 to 50% of the total ignition system energy will appear across the spark. Hence any additional current means energy is required to obtain and measure in spark current. Furthermore, higher current levels increase the chance of the spark plug electrodes.

A much more attractive method of raising spark temperature is to reduce spark electrode. Since graphite tubes place in less than 5 microseconds, a spark of my longer duration serves no useful purpose.)

For example, a spark which dissipates 0.4 watts of energy in 0.008 microseconds will have a power level of 100 watts, if the current can be cut to 40 microamperes, the voltage will be stepped up to 10,000, and spark temperature will be 100° F. times higher for the same spark current.

► Practical Factors—Practical circuit can calculations limit the length of spark duration which can be obtained. An instant cooling caused by wiring or transformer between the energy source and the igniter plug will reduce the time at which energy can flow into the spark and hence spark duration.

Scintilla first applied this new design philosophy to its model TEN ignition which used a condenser to store spark energy, and electronic tubes to control the timing of energy to the igniter plug. By eliminating the transformer in the discharge circuit, voltage induction was reduced sufficiently to permit discharge in a few hundred microseconds. This enabled Scintilla to achieve a 1,000% increase in spark power over its previous ignition, with only a 20% increase in spark energy.

► Further Reductions—in its newest TLN-10 ignition, Scintilla has cut the change time further, to about 25 to 30 microseconds, according to S. E. Gossman, assistant chief engineer. It has also eliminated the vacuum tubes and



## NEW PANEL METER

Scintilla's new panel meters are now available with helium illumination provided by either a 6, 16, or 28-volt lamp. Instruments are D'Arsonval movements and come in variety of types, sizes with straight scale and International Instruments, Inc., P. O. Box 2914, New Haven 15, Conn.

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increased spark power by more than 160% over the TEN model with only a 10% increase in spark energy. The TLN 10 produces 10,000 v across the spark with an energy content of only 0.1 microampere-second.

► Establishing the Spark—Once the ignition spark is established, the voltage drops across the plug is markedly increased under 100 v. High voltage is normally required only to initiate the spark and when this happens, a relatively low voltage can sustain the spark.

In its previous model TEN and TCM ignitrons, Scintilla provided a high-frequency, high-voltage, low-energy spark to establish the spark. It required 15,000 v applied for about 3 microseconds to initiate plug ignition when the igniter was fully loaded with carbon. Once the spark was established, a low-voltage, high-frequency spark across the plug maintained which served to ignite the fuel-air mixture. Total duration of the two sparks was about 100 microseconds.

► Eliminating High Voltage—The use of high voltage, particularly at higher altitudes, presents many insulation problems such as corona, breakdown, and dielectric losses. These high tension problems prompted Scintilla to peer considerable effort into finding a way to eliminate the high voltage which is required for the initial ionization stage.

The result of this effort is an igniter plug which requires a potential of only 1.5 v to 2.0 v to initiate the spark between the center electrode and the shell. The spark is a substance built into the base of the igniter plug. Otherwise the plug directly insulates a conventional unit in appearance, size and weight.

Used as the TLN 10 ignitron, the new plug allows ignition voltage to be dropped from 15,000 v. to 1,000 v.

► Advantages—The low-tension ignition enables Scintilla to use cable insulation which has greater dielectric strength but better heat resistant properties. This in turn provides the igniter base to be encapsulated in a variety of insulation. The new cables are well-insulated transducers in the mating joints of connectors, Scintilla says.

The new plug design also assures that the spark will take place within the insulator space between the center electrode and the shell. The spark won't wander away from the plug base in the form of long thin discharge streamers when subjected to ram air pressure.

► Solving Fouling Problem—When carbon deposits build up within an igniter plug, they provide a low-resistance path around the gap which makes it difficult, if not impossible, to establish the spark. When the igniter plug becomes badly

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North American has built more airplanes  
than any other company in the world

settled by fuel, a similar situation exists. To eliminate the inaccuracy in timing loaded plugs, Scoville says that to prevent jet ignition could follow a short duration of no lower than 400,000 cycles. At higher settings, ignition follows. The TEN and TCM types could tolerate a maximum of 5,000 cycles, the new TLN-10 will fire when the short duration is as low as 34 cycles, Scoville says.

► **How It Operates**—It provides lead-acid protection, jet engine ignition, servofly control, fire and completely safe pyrotechnic systems. The engine component of the new TLN-10 can be armed by causing one of the two selected switches. The engine receives at a large tank modulus. It is charged twice the secondary winding of a transformer whose primary is excited from the tank supply through a breaker. The igniter section is opened and closed many times each second by a continuously rotating dc motor driving a cam. Each time the breaker is opened or closed, the ring or drive of current at the primary winding creates a voltage at the secondary which adds to the energy charged in the tank condenser.

The motor dc motor also serves to operate the contacts which connect the tank conductor to the igniter plug to permit it to discharge through the plug. The contact closes 5 or 11 times a second (approximately), depending upon the tank's supply voltage (14 or 25 V). The breaker opens and closes several times for each movement of the contacts to build up the energy in the tank condenser.

A resistor between the transformer and tank conductor prevents the condenser from discharging back through the transformer. A small conductor across the igniter contacts is used to prevent series wiring of the igniter contacts. The dual contacts are independent except for the dc motor operating the contacts and breaker.

► **The Future**—The principles of TLN type of levitation ignition may find application in magnetizing dynamos, Scoville thinks. In developed form, igniters, igniters for high-voltage power supplies, igniters for high-voltage problems, would make it stronger. It would also enable ignition dc requirements to help repay some of their debt to piston-engine experience.

### New Reactor Catalog

Southwestern Industrial Electronics Co has prepared a complete catalog describing its low frequency transistors and rectifiers including a new miniature type. SEMI says its transistors and diodes have unusually high conductance giving excellent low-frequency performance (3311 Post Oak Road, Houston, Tex).



### New Oscilloscope

#### Withstands Shock

A small 8-line oscilloscope with 12 recording channels has been introduced by Maltese and Geophysical Laboratories. The manufacturer says that the U.S. Naval Ordnance Test Station at White Oak under the test of the H-100 impact test showed that 80% failed at within  $\pm$  25 H of memory retention, 95% were within  $\pm$  30 H, Geophysical says. Flight records are still being analyzed to establish glide slope performance.

► **Small DC Power Supply**—Dental Electronics Corp. has announced its "400 series" of regulated dc power supplies for lab use. They are standard with 15 ampere output, constant within  $\pm$  5% from zero to full load, are available for immediate delivery. Each provides 200mA of regulated power; 1000mA of unregulated power, plus 6 steps of 6.3 mA for filament supply. The Model 4013 regulated voltage is adjustable between 250 and 300V, the unregulated voltage range is 610V. The Model 4013 regulated voltage can be adjusted between 150 and 175V, unregulated voltage supply is 410V. (Brook Bond Co., Lincoln Ave. & First St., Bristol, Pa.)

The oscilloscope records on 15-in wide film and holds a 40-ft. supply. Three film speeds are available by changing gears and all operating controls and the vertical and horizontal scales are fully automatic. A variety of galvanometers with unchanged natural frequencies as high as 3,500 cps are available for use with the new oscilloscope.

Maltese and Geophysical Laboratory, Tulsa, Okla.

### FILTER CENTER

► **CF-300** To Get M.H. Stabilizer—Canada's CF-101 jet fighter, built by A.V. Roe, will be supplied with a new Memphis-Henryson rear via billet changes to eliminate Dutch Roll, oblique wing motion at high speed pitch. M.H. says the stabilizer, called a yaw rate control, will be much advanced over previous designs and can be expanded into a complete yaw pitch at a later date if desired. Canadian awards to about \$1.7 million.

► **New Mag-Amp Regulator**—Westinghouse is expected to announce a new all magnetic amplifier aircraft voltage regulator soon. It will use no vacuum tubes, in contrast to recently-announced GE magnetic regulators which require a cold cathode tube to establish a reference voltage. (Aviation Week Aug 11, 1962, p. 36)

► **Speed Up F-104**—Autopilot Test—USAFA will allocate a Lockheed F-104 to be used solely for flight testing the plane's new Wernherow-WMA autopilot. Wernherow had been unable

to get sufficient flight time to run out adequate stability predictions on previous test plane because of higher priority given to other test programs.

► **Collins Turn Apparatus**—Honeywell Analysis of flight records showing lateral performance of Collins Radar's turn indicator system in the F-104 and F-105 under the H-100 impact test showed 10 different reports that 80% failed at within  $\pm$  25 H of memory retention, 95% were within  $\pm$  30 H, Collins says. Flight records are still being analyzed to establish glide slope performance.

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# EQUIPMENT

## TPA Aloha: The Fly-by-Day Airline

- Five-DC-3 inter-island carrier plans growth.
- Upping flight frequencies is a main concern.

By George L. Christie

Honolulu, T. H.—The horizon of operating at altitude is increasingly few.

Take TPA Aloha Airlines. The operating section of the airline starts down every evening at 7:15, after 34 flights. It becomes airborne again at 5 a.m.

On the other hand, the carrier's shops at Honolulu Airport are devoid of mechanics during daylight hours—tool boxes locked and tables largely empty.

At sundown, Aloha's maintenance personnel come on the job to keep the carrier's fleet of five DC-3s in top-notch mechanical condition. They go home at dawn.

And another of Aloha's departments, Passenger Service, has some interesting ideas—particularly, how to earn one of the biggest livelihoods in airline business, no-show. Single out the passenger a cash register receipt instead of a ticket to a specific destination. No seats reserved, first come, first served.

Only One Franchise—Aloha officials believe they have set something of a record by flying 4,160,000 mi. in 51 years because a festive fellow from Mr. Frost & Whistler, K1830 QL, catalog. The figure is particularly impressive because the carrier's home field, only about 100 mi. or less, and there are frequent engine-consuming take-offs in standard operating procedures. The airline attributes part of this record to its strict 25 hr. inspection procedure which includes pulling oil screens and fuel strainers. Engines are overhauled at 1,200 hr. by Southwest Airways in San Francisco.

Major engine problems cited were steady valves. Trouble usually begins at half engine life. Currently, so far, in nine years, TPA also is experiencing some difficulties with which it is combating by thorough plating the port end mating flange surfaces.

Such a task (Competitor RJSF) is no a full 100 hr. of Aloha. The carrier has plans to take a 300-hr. set, check the gap and run them another 100 hr. If they are in good shape (and TPA maintenance personnel think they will



TPA TERMINAL, Honolulu, Maui, supplies transportation, left, loading plane's facilities



NATIVE MECHANIC overhauls DC-3 engine, a frequent overhaul job due to short haul



MAIN OVERHAULS BASE at Honolulu, where a DC-3 is undergoing checkup

ish, an extension to 400 hr will be asked.

- Around the Shop-A run through the Aloha lounge and shop facilities brought out these observations by the owner's maintenance personnel:
  - Comparison is a big problem, especially on the outside surfaces of wings and stabilizers because of the way paint is applied. Some of the new products such listed are: "Tintex," "Proline," "3000," "brightener," spray has proved effective in a polish and improves relationship.
  - Fuel drain hoses have been changed from solid to Aerogrip flexible hose. Much cracking, breaking and insulation lossage has been eliminated.
  - Utilization is hitting the 6-hr-a-day mark—not bad when you consider that the surface only operates during daylight hours.
  - Generator overheat problem has been cut to 600 hr, exactly half the engine removal time. Result has been a 60% reduction in generator overheat costs because they are ground factors removed.
  - Fuel tank caps are now made of sheet brass, causing no machined metal and usually expensive overlaid gaskets.
  - Interior of Aloha I DC-3 seats are being reconditioned as an Hawaiian theme. Seat panels are of planked, tapered leather, side walls are decked with green cloth and headrests are soft grey cloth. Green leatherette covers the seats. Win-

des curtains display an island flower print. Individual ventilators add to the circulation by casting floor vents.

- Brake cylinder leakage is a problem, aggravated by frequent landings and takeoffs. Studies are expected any day.

• Axle problems are its own maintenance problem, but presents no difficulty in repair and replacement.

- Fuel tank Lept is a minimum. Passengers get oxygen to cool and water to drink, the latter sometimes ample enough by propeller noise.

► Double the Load—Ruddy II. Tonga TPA's president, cited the fact that April, 1952, was the first month in which TPA had succeeded in doubling its passenger load over the same month a year ago. He indicated that if the last few months were accurate program forecast of the entire year 1952, his airline would show a \$425,000 profit as opposed to a \$200,000 deficit in 1949 when the carrier started operating on routes.

The south TPA, he said, should not only be "Trans Pacific Airways," but also "The Tongan Airlines." He explained that the owner's stock was revalued at \$100 per value but put it within everybody's reach. Tonga still he wants to spread ownership to every corner of the territory so that every time a TPA plane comes overhead, the people will say, "We got a piece of that plane."

► Operations Fisher—The Hawaiian Islands present many tempting patterns to airline operators. The two major variables about the weather problem—winter is good about 190% of the time, and practically no surface transportation competition. For all these reasons, Fisher pointed out, the only reason for traveling between the only principle Hawaiian Islands of Kauai, Oahu, Maui, Molokai, Lanai, Hawaii, Maui and Hawaii.

David Bruce, TPA's executive vice president, stressed the fact that what we know in Hawaii needs to make flights with aircraft equipped to handle 10-15 passengers. Current traffic does not require large planes whose flights have to be spaced by enough adequate payloads at relatively high cost.

Fisher added that his company's 25 seat DC-3 provide enough capacity for 99.85% of TPA's flights which are at most 10% parallel to its competitor, Hawaiian Air.

To sum up, Fisher said, TPA is concerned with two things:

- High flight frequency—ideally at 16-min. intervals.

- Low operating cost to combat rising prices. He cited these estimates in costs in less than three years fuel, up 10%, labor, 23%, taxes, 57%, parts, 100%. (However, operating costs in terms of aircraft revenue index are down 10%.)

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and pilot protection  
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LAWRENCE RIBNER of a long line of Navy fighters purchased by Commercial Aircraft Engineering Corporation, Long Beach, California, is shown here flying his new Grumman F9F-6 fighter. It measures with low leading and rear air speeds and makes a short take-off and hard landing. Its cockpit is fully enclosed. Weight reduces from Pittsburgh Multiplate Safety Glass.

## Pittsburgh Multiplate Safety Glass

Like other, better-performing planes that are taking their place as part of America's air arm today have characteristics that differ as widely as the tasks for which they were designed. But most of them have one thing in common. Almost without exception, they are equipped with Safety Glass by Pittsburgh.

The new Grumman F9F-6, a plane which began rolling off the production line less than five months after the first flight of the prototype was a worldbeholder of Pittsburgh Multiplate Safety Glass. That bullet-resistant, gunight reflecto-type glass, reground and repolished to provide maximum optical properties, is already standard equipment for windshields of fighter planes.



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a half million people flew on the Hawaiian Islands—that adds up to an average of one flight for every man, woman and child in the Islands. And TPA earned 118,549 of those travellers, an increase of 54,870 over 1953, or a 67% boost in one year.

A quick trip in one of TPA's newly declassified DC-3s from Honolulu to Lahaina (the non-airline island of Maui) and return gets an idea to the simple, on-time operation the airline offers. Passengers were larvae, basic waves on shopping traps, lightening couples, children and old houses.

Transoceanic flight at Lahaina, which means a complete sailing and landing of 10 hours, and bad enough, was a 10% fee reduction.

TPA Aloha Airlines had a pretty rugged beginning. In conception was actually opposed from the start by its only competitor, Hawaiian Airlines. And at first, it had to buy all its route concessions from HAL, but with the great increase in air travel passengerly, Aloha was able steadily and rapidly to expand its operations. Its flight grew from one to five DC-3s. And it succeeded in obtaining full pay.

Tonga's prediction that TPA would earn \$125,000 in 1952 suggests the airline is at last on its way to success.

## OFF THE LINE

Sabena Belgian Airlines have installed six-plate flight instruments in two of their Bell 47D-1 helicopters (the first 47D's were built in 1949). Instrument panels made of aramid fiber, glass and plastic, and built according to the needs of the helicopter. Purpose is to extend the utility of the craft as an instrument carrier along Sabena's 200-mile aerial route. Casier said that with these instruments, pilots can bring cargo to GCA airports in almost any weather.

Euro Export Corp. has a contract, commencing 1953, to provide service and supply of aviation fluids and engine oils to 82 government aircraft in 95 cities located in 42 countries in Europe, Africa and North and South America. This says that it is the most extensive contract of its kind ever to engage an engineering company. Grade of gasoline specified is 105/149, 100/116, 91, 93, 96, and jet fuels.

Eastern Air Lines' newest line soon leaves building in Miami to progress rapidly. Foundation and underground piping of the 55-million, 12-story 55-story building are approximately 95% complete. Grounding for the 20 acres of

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Specialties, Inc., needed a wind-tunnel to test its angle of attack system, but costs were prohibitive. So it made its own. The Symmet. L. I. firm's pocket-size tunnel has a 2-oz. mwh wind section, is powered by a 11/2-amp electric vacuum cleaner blower which provides wind velocities up to 280 knots. Accuracy of measurements taken in the tunnel exceed 1/80 of 1 degree, according to Specialties.

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Sel-Lok Fastener Corp., 239 Stephen St., Bellville 9, N. J.



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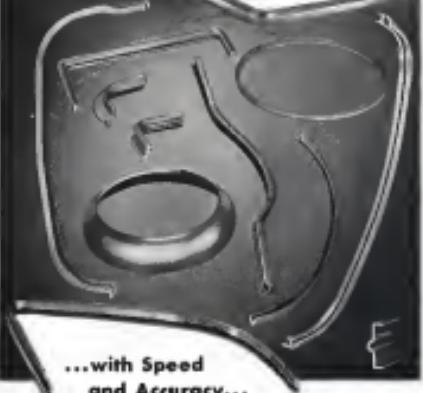


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SAC Electric Corp., 6823 Artesian Ave., Chicago 34, Ill.



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Tenne Metal & Mfg. Co., 6114 East Paul Road, Dallas, Tex.

### Wide Angle Lens

A wide-angle lens for high-altitude photogrammetry, capable of covering fields of 90 deg. at elevations up to 60,000 ft. and with focal length of 51 in. is being used in the first KB-36 reconnaissance aircraft at the 5th Wing base at Travis AFB, Calif.

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Bausch & Lomb Optical Co., Rochester, N. Y.

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## AIR TRANSPORT

### Three Airline Mexico Certificates Voided

- President cites six years of failure in attempted negotiations as one of reasons for his action.
- Another: It gives U.S. agencies a fresh start and free hand in bargaining. Braniff, EAL, WAL hit.

By F. Lee Moan

In an action unprecedented in U.S. and aviation history, President Truman has canceled the Mexican certificates of Braniff, Eastern and Western airlines. The certificates were issued six years ago to the Latin American service line, but these three airfares never got Mexican permission to operate the route, although American Airlines and Pan American still operate the Mexican routes they gained previously.

The President withdrew the Braniff, Eastern and Western certificates with out consulting State Department or Civil Aeronautics Board. He has ordered CAA to return preparation of new applications. "It's a fair and equitable treatment," the transportation department provided for a usual pattern of six transportation between the two countries.<sup>1</sup>

**Turmoil.**—This is a new episode in transoceanic negotiation. Obviously, CAA might recuse after lengthy protracted consideration, and then State, with Board participation, tries to get the wanted landing rights.

In the Mexican situation, the President has named that second. State and CAA may negotiate additional rights into Mexico. Then the Board would issue certificates in accordance with the terms accepted by Mexico and the U.S., after the usual procedural hearings.

The consultations brought transoceanic negotiations among industry observers as to whether under influence had been brought to bear on the President by one of the U.S. airlines now serving Mexico.

In his letter to CAA Chairman Donald Noyes, the President cited three main issues as his motives:

- Six years' failure of negotiations as far as the previous state of affairs.
- To assess negotiations by giving U.S. negotiators a free hand in bargaining, with a fresh start.
- To stop airline interference in an isolated task, confusing several "government-to-government" bargaining par-

ties, some observers have pointed out. Quoted earlier, class question is whether Braniff, Eastern and Western may claim prior "grand father" rights to any new future Mexican certificates that CAB may issue.

President? Might the President's methods approach to bilateral air agreements be repeated in event of future transoceanic negotiations? In their legal opinion, which certifies may not be issued by CAB to get foreign landing rights, some individual parts-parts of certificates-may be held up, but a CAB official said he doubted the President could do without his signature from part of a certificate. Some undervalued points on U.S. airline certificates still hold up by the Iberia government-says Braniff to Bogotá, CAA to Netherlands West Indies, Pan Am to Paraguay and a string of Southern Port Coast routes.

Why were CAB, State not told? Since Washington observes wondered why the President acted without consulting State or the Board first, but a State Department official told Aviation Week that the two controversies had long been in the side of the road. The CAA-Mexico negotiations, and the President has long been close to those problems-hence probably little need for lengthy discussion.

**Debt.**—Observer at State Department said CAB said the President's action may have cleared the air and gives an opportunity for a successful bilateral air agreement. They pointed out that the situation could get no worse than it has been since 1946.



CONESTOGA TREKS WESTWARD

The World War II surplus Stoddard-KB-2 Conestoga was recently picked up in Cuba by Trans-Air Lines Ltd., and flies to the Islands for freight operations. Streamlined freighter is specially adaptable to the



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## Coach Convairs

- Maker and CAB push new convertible version.
- A flexible arrangement could seat 30 to 56.

Consolidated Vultee and Civil Aeronautics Board are both urging airlines to specify Convair's "convertible" passenger seating arrangement on the 170 Convair now on order. The convertibles allow an easy switch to seating densities from 30 to 56 passengers instead of the standard 44 seats now specified.

For \$25,000 extra per new plane, the "convertible Convair" boasts a 27% increase in revenue capacity; the manufacturer's sales director, Peter Soddy, told *Aerospace Week* recently and will try to meet varying demands of different routes, seasons, competitive fares and charter.

Near the U.S. lines has agreed to the change so far.

► **Twin-Eagle Wedge**—Convair is actively pushing convertible or coach versions because it believes these more economical planes may allow the two-engine Convair to invade the long-haul and high-density markets hitherto monopolized by the four-engine transports.

Convair maintains that the seating density on the convertible version is enough changed that it is "acceptable" for most such day-to-day arrangements of the aircraft. Even the 56-seat arrangement is "economical," according to Soddy. Convair says it offers 51% greater seat and a 10% more room underneath the seat than does a passenger's feet. And on a popular flight that is often sold out, an airline can add 12 more seats within the envelope of the flight and gain \$100 in more extra revenue, Convair says.

Both thus change its assembly line. Convair has arranged for Allis-Chalmers Div. of Garrett Corp. to do the job after the planes come off the line. The flexible seat system is made possible by track mounting of the four rows of seats, with both halves easily swiveted. The prototype Convair CV-340 seats 44. Fox extremely long range flights up to 2,000 nm, seating on the convertible might be reduced to only 30 passengers. For high-density seating there is room for 56 seats without swiveling a single half-track.

Convair's brochure states: "Traffic trends and competitive situations are dictating that the 56 seats be used in low-fare service, as which most the 27% increase in seats (from 44 to 56) brings more potential gross revenue per flight than from 44-seat standard flights." For example, a 56-passenger plane at 5¢ cost-mile fare has more revenue per



## USAF, Navy Buy Big Loading Lift

A re-engineered, larger-capacity loading lift for serving cargo planes is now in quantity production for the Air Force and the Navy. Known as the Asstrolift, the loader was originally developed in cooperation with Lockheed Aircraft Corp.'s cargo division (Aviation Week, Dec. 24, 1951, p. 20). The redesign, completed by Convair Corp., cuts weight 51% and saves a lot of space under the seat used for a passenger's feet. And on a popular flight that is often sold out, an airline can add 12 more seats within the envelope of the flight and gain \$100 in more extra revenue, Convair says.

Asstrolift will handle a 15,000-lb. load 12 ft. in 14 sec., or diminished in 1 min. or less, and will now be shipped in the belly of a Super Constellation, along with other cargo.

The lift, incorporating a 10-ft.-lift platform, can be hoisted to plane so quickly. In addition to its cargo job, it can be held in holding bay platforms for unloading planes and can also double as a work platform for aircraft maintenance crews.

Asstrolift will handle a 15,000-lb. load

in half the time of a 44-passenger plane that is 6 tons or more, and acceleration of the \$52,000 convertible installation is completely negligible in this consideration.

Says Convair: "This the convertible offers two important advantages in its design: first, it achieves savings in operating costs with increased revenue potential; and, further, it provides rapid entry for this short-hauling operation over regular item."

► **CAB Pushes Convertible**—Charles Barr, director of CAB Bureau of Operations, along with most of CAB's economists staff, has been urging U.S. air lines to enter the 170's market seriously, either by buying new aircraft planes or converting planes. But out of the approximately 300 new transports on order, only Pan American's DC-6Bs, including CAIR staff, are convertibles and no U.S. line has yet ordered the convertible Convair, according to latest reports.

Only foreign airlines have ordered

convertibles so far: KLM, Philippine, Avianca, Cia. Brasileira de Sul and Finnair.

► **Convair Optimistic**—Set Convair concludes that "of the more than 170 confirmed 340s now on order, a majority still wind up as convertibles."

Convair quotes a "passenger airline president" (possibly Pan Am's Juan Trippe) to the effect all airplanes should convert to the convertible format. If he had his way, possibly 100 more airplanes would have been sold in as much as \$200,000 on each plane through elimination of direct costs alone, without considering the revenue loss from the airplane being out of service during modification.

Pan Am is considering entry at the twin-engine planes to flexible seating, as well as ordering new coach DC-6Bs, according to CAIR staffers.

Last spring, Convair was also talking of 70 passenger Convairs for short-range transocean service (AVIATION WEEK Apr. 7, p. 67).

## Tigers Win Navy Contract from Slick

The Flying Tiger Line, after a battle of low bids and Civil Aeronautics Administration proceedings, has captured Shik Airway's Navy cargo transport contract. It initially is worth \$900,000 gross revenue a month and annual expand.

Tiger won on a low bid of 73.9 cents a C-45 plane mile. This was 4% cents, or 1%, under the existing CAB bid of 77 cents/mile, and that Shik had to give up 10% of the contract.

Tiger says the new contract will boost its monthly freight revenue 60%. Shik claims the contract will operate at a loss or at least no profit and says the board, the charter rate structure of the airline industry, the Board cannot sustain it. Both the freight and passenger earnings earned freight tariffs this spring because of rising costs.

► **Froots**—The contract requires a daily transcontinental roundtrip freight flight up service along Navy's route East and West Coast supply bases. It averages 2.3 million ton-miles a month. Details of its economics and operation first appeared in AVIATION WEEK (June 11, 1951, p. 12).

When Shik's contract came up for renewal last June, Tiger went below Shik's 77-cent rate with a 73-cent bid. Shik protested to the Board and the Board said that was beyond Tiger's cost and the CAB tariff on file for both airlines. But Tiger had filed its new rate proposal. So Shik made a new bid for Navy at the 73.9-cent rate and filed it with the Board, but protested both its own and Tiger's bid.

CAB suspended the low tariff probe into investigation, then opened a proceeding and held a public hearing conference. Shik continued operating the contract into July and August, on an interim basis, pending decision. But Tiger held the contract until November.

The Navy's Secretary, James Forrestal, rejected the Board's vote to revoke its suspension of the low tariff on grounds the Navy would lose \$8,000 to \$16,000 a month.

Tiger, indicated at CAB conference, Bova's prehearing conclusion that it would go ahead on the Navy contract. The airline argued that it was a contract, not an option, carriage options—hence not subject to CAB rate control.

► **Board Hows to Navy**—The Board maintained that the contract 86 excess earnings, since Shik and Tiger offer that type service to the general public for any company to sign to accept.

BETI argued, temporarily, regarding the suspension of the 73.9-cent tariff. Navy handled the contract to Tiger

The Board is continuing investigation of the tariff's economic justification to find if the new rate is unreasonable. In Shik charges, if it doubles the rate is too low, CAB may order the Flying Tiger flight to change Navy a higher rate. Should that happen, Tiger will have two twin engines, costing CAB participation in the contract or attempt to re-negotiate the rate with Navy. There is a question of whether that might reopen the contract and give Shik a new clause.

## PAA and Guatemala Reach Agreement

(McGraw-Hill World News)

► **Guatemala City**—The government and Pan American World Airways have agreed on details of a five-year operating contract, according to R. M. Smith, Charles Alberto Sandoval and J. H. Wilson, PAA Guatemala manager.

Suspension was expected immediately, with the proposed approval by Guatamala's Congress to follow promptly.

The agreement ended an 11-month period during which PAA had been in a day-to-day operating basis in Guatemala.

Wihers and Fred Powers, PAA Latin American special representative, and settlement of operating rights, parts the way has suffered of legal troubles that caused PAA to halt its Guatemala operations July 21. With 300 staff and a labor settlement would put an early resumption of operations.

## CAA Relaxes Its Ruling on Spoilers

Civil Aeronautics Administration has new panel recommendations and rules to remove the "spoiler" from the wings of the Boeing Stratocruiser and Douglas DC-6B. It is the same device CAB demanded on those planes for type certification.

The spoiler is a flap or molding on the wing's leading edge to stall it stall easily, thus decreasing drag. It makes a slightly higher landing approach speed and lower maximum angle of attack, thereby reducing landing pressure.

The CAA also has followed revision of a Civil Air Regulation. The main changes were forced to put on the board by a third interpretation of Civil Aeronautics Board's still classified regulations. CAA and the old rule required that a plane be flown with a drag, power on or seawards until no climb without rolling before the nose dropped through five degrees of roll. ► No New Tests—Manufacturers and airlines said this was unnecessary re-

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quirement. When the federal agency stuck to its strict interpretation of the rule, however, the Aircraft Industries Assn. finally persuaded CAB to change the regulation.

But that was too little to save Douglas from several months' delay in certification of the new DC-6 model. Douglas had ordered up, in accordance with the original schedule, 120 aircraft. The revised flight tests to prove the DC-6B meets the revised Board still rules will not be required because the extensive flight tests during the 1958 CAA, Douglas says, demonstrates production of all the data needed.

Meanwhile, Boeing Airplane Co. and Pan American's Pacific division have completed flight tests qualifying the B-727 for special seasonal order. The amended regulation, United Air Lines has started removing the spools from both its DC-8s and Stratocruisers, and Pan Am is doing the same with its Stratocruisers.

## Copter Carrier Begins Fourth Year

Early last month Helicopters Air Service, Inc., started its fourth year of successful annual service in the extremely hot Chicago area. In that time, the carrier has compiled an impressive record, not the least of which includes moving 160,000 tons of freight and 100,000-40,000 barge trips from the port office interchange without an accident.

Although the air taxi fleet, comprised of Bell 47 helicopters, have flown approximately 1 million hours and carried more than 600 million pieces of mail along three major routes, 93 105 mi long, among 55 communities around Chicago since three days.

It is estimated that the carrier helped double the rate of arrival in that area and increased its use by 300% in some sectors.

## Snags in Merger Of Pacific Airlines

(McGraw-Hill World News)

Melbourne—Plans to merge three large Pacific Commonwealth airlines to form a sole front to Pan American Airways' competition are still likely reported to have run into difficulties.

The carriers involved are British Commonwealth Pacific Airlines, Qantas Empire Airways and Transair, Empire Airlines. The British, Australians and New Zealand governments are behind the merger, but British interests are slowing action by this developing way. Strong British interest is due to largely to the merger goes through it will become an exclusive British market.

## Airlines to Continue Roundtrip Discount

Because of improved revenues and earnings, the scheduled passenger airlines are abandoning their plan to Cink American Board for flight discounts. They had planned to give CAB permission to retain their traditional 5% roundtrip discount.

They have found that up now, because higher fares in winter is leading to offset expense increases by reducing and cuts. And they know the improved earnings, instead, is among the Board more selective than ever to permit the expected fare cuts. They have an eye on the CAB investigation of complaints of marked airlines, whose major contention is that the so-called "airline's" monopoly position makes their fares more expensive than others.

American Airlines, which led the fight last winter for a 5% discount, has withdrawn from the negotiations, according to Shirley E. West, TWA and Cathay & Southern also subscribe below or at the same rate as American.

Eastern, Capital, Delta and often may be forced to withdraw, too, from competing fares. National Airlines, however, did not ask a fare cut.

Last winter, American's subscriber forecast to CAB showing that many roads would force higher rates the next few of savings were to be passed on to passengers. Eastern has done, but American's volume is up about 20%, an official said, so savings are running close to last year.

## New South Pacific Services Pushed

There is a minor boom in the South Pacific to establish a new group of airline services to connect the numerous small, but attractive, tourist spots in the area.

Here are the recent moves pertaining establishment of the new carriers:

• Civil Aviation Board issued a flight route and granted a certificate to Transair, M. Collins of Honolulu, which will operate air services to American Samoa, now resolved only by boat.

• Capt. Bryan Mansfield, an Australian pilot, and Frederick Barnes, Sydney businessman, held discussions with Honolulu businessmen to get backing for a proposed Hawaii-Tahiti service via Christmas Island. The carrier, to be called South Pacific Air Lines, would operate a Short Solent flying boat.

French government of Tahiti flew to Honolulu, then to Washington and Paris urging encouragement of tourist travel to the island.

• Pan American World Airways has announced an agreement with Trans Timor Air Lines, which PIA will serve Fiji and Samoa from Australia beginning Oct. 14, thus giving PIA its first direct connection to the Solomon and Fiji.

• Hornell Gates, Wiley Post's navigator on his 1931 round-the-world flight, has announced that he has taken a third DC-3D bought for his Pan American

Solomon Airlines plane flies service connecting British and American Samoa and over-seas service from American Samoa to Canton. It also flies flights to Tokyo, Fiji and Tonga. The carrier will use 2024 passengers PHY-SX transports.

## SHORTLINES

► An Transport Airlines dropped plans for airline pooling of short-haul, heavy investment path inventories (Aviation Week, Sept. 27, 1951, p. 56)—but the problem could be the result of purchasing errors, also, unless some custom-built or modified items need pooling.

► American Airlines set an all-time in aircraft record of 275,860,000 revenue passenger miles in August, helping the previous record—set by AMR the year before.

► American Airlines set an all-time in aircraft record of 275,860,000 revenue passenger miles in August, helping the previous record—set by AMR the year before.

► British Overseas aviation has filed its final route system proceeding the Post Office recommendation that BOAC be required to set up a profits equalization reserve has been denied by the board.

► British European Airlines claims a profit of \$500,000 for July, up 114% from a year ago.

► British Overseas Airways landed 13,000 revenue tons-Mile Atlantic passenger the first four months of new service.

► California Central Airlines landed 159,765 passengers on its Manila 2,020 mi in the 11 months to the Sept. 1. Company says the Manila boosted daily schedules 65% and created CCA to service the faster night time on the West Coast. The company saw its CAB approval for 1,200 hr. between engine overhauls.

► Civil Aviation Administration has set special zones for glider and explore



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pilot ratings... CAA has sent four survey specialists to aid Twa in its survey installations.

► Hawaiian Airlines August traffic was up 25% from a year ago to 43,629.

► Imperial Airlines, Jagdavia, has added three Convair Liner 360s, making commercial totals of that model over the \$100 million mark—175 planes ordered by 30 parties. (USAFA-bought military versions include the T-33 trainer and C-119A survey plane part.)

► National Airlines annual report indicates that President G. T. Baker is discussing merger with Delta, Capital and other complementary airline systems.

► Company also is negotiating bank loans to pay for ordered equipment and will start receiving New England aircraft service soon, the report reveals.

► Northwest Airlines load factor in August was 70%, compared with 69% in July and 77% a year ago.

► Senate Small Business Committee staff report applauds CAB's protection of independent air freight lines' Latin American routes as a precedent for the proposed trans-Atlantic air freight case. Also says the current CAB needed investigation results from the committee's June, 1951, report urging a plan to enable methods "to operate in a way that will keep them a vital, growing concern without in any way competing or hindering the regularly scheduled carriers."

► Sher City Airways says its new venture into ferry trips across the English Channel are "reduced virtually to a lost level."

► Southwest Airlines has been talking range possibilities with Boeing Air Lines.

► Twa's Airport Refinery has come of former legend: 80 children from training to actual use of field's refinery this month as grounds that the school location was "fantastic."

► Trans-Canada Air Lines may order twice planes this year, for delivery in 1954. The airline reports Canada's traffic growth makes this necessary.

► Trans-Pacific Airlines August traffic of 24,889 passengers was up 35% from a year ago to an all-time high.

► Trans World Airlines retired almost all its DC-3 fleet that month, after starting Martin 4-0-4 service in northern and southern. Most of the 40 DC-3s awaiting will be sold.

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### To Provide Firm Foundations

The general route to be followed in putting firm foundations under our prosperity is quite clear: It involves two steps which must be taken closely together. The first is to stop the continuous increase in federal expenditures. The second step is to substitute expanding private business for government-financed business as the principal foundation of expanding prosperity.

The increase in federal expenditures can be stopped without sacrificing any effective measures now directed toward meeting our top priority requirement—protection from armed Communist aggression. The most competent authorities of both major parties agree it can be done by (1) better planning of and the elimination of outright waste in defense arrangements, and (2) cutting those civilian expenditures which cannot be partitioned at the same time we are undertaking a great new load of defense expenditure.

It is also possible to substitute expanding private business for government-financed business. The problem is principally that of rehiving private business of the staggering load of federal taxation it now is carrying. Federal taxation now takes 52 per cent of all corporate profits and 82 per cent of all so-called excess profits. If it were not for the fiscal draft placed under our economy by rapidly mounting defense expenditures, this burden would surely lay a disastrous blight on private business expansion. If expanding private business is to have a chance to play its critical role as a substitute for government-financed business, its taxes must be cut, and soon.

### It Won't be Easy

It would be naive to contend that it will be easy to check the expansion of federal expenditures. They have been running wild too long, and in the process contributing to a feverish, inflationary prosperity. Likewise, there is no reason to believe that the easing of the load of business taxes is going to be easy. The basic blight it puts on business expansion has been too long obscured by having our economy dosed with artificial stimulants, most notably enormous injections of federal expenditures.

### The Key Question — How Long?

It is obvious that prosperity is going to be a major topic of discussion in the present political campaign. There is nothing the matter with that. Prosperity is a key concern of the voters in choosing a national administration.

To make the discussion of prosperity really useful, however, it is important to ask and get answers to the right questions about it. The key question is not whether or not we have prosperity. That we have it in large measure is generally conceded.

The key question is, "How long can we continue to have prosperity?" The answer—not very long if we continue to rely primarily on new injections of inflationary federal expenditures. Santa Claus, as it is remembered, is no youngster. If we continue our present impavidous course, he will be worked to death. Those politicians, regardless of party, who see this clear danger and who have plans to escape it are facing up to the crucial question about our prosperity.

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**AIRCRAFT TANK SERVICE, INC.**  
BIRMINGHAM, CALIFORNIA

Announcement  
The Opening of a Factory Branch Plant  
in the Facilities of  
Engineering & Manufacturing Corp.  
Redondo Beach  
Factory Trained Personnel—Locally Appointed  
Committee of your interest and local position  
Please Inquire P. O. Box 479  
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**WANTED**  
C47 or DC3  
CARGO or PLUSH  
Fuselage  
Tail Section  
MAINT AIRCRAFT SALES  
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### WANTED-AT-6 PROPS

TELE 4-4444. Complete Propeller  
Assembly, 4-blade, 44" dia. 1000 rpm.  
1440 ft. lbs. torque. 1000 rpm. 1000 ft. lbs.  
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Also: 1200-1300 ft. lbs. torque.  
Also: 1000 ft. lbs. torque units.

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40,000 Foot Building

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One Floor—Large Span—High  
Ceiling—Large Grounds—  
Excellence

TELE 3-5555, Applied to Work

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Serial 1210 - 20 Bell Helicopter  
For conversion - Standard conditions  
Price to sell

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### For Sale!

### AIRCRAFT QUALITY SEAMLESS STEEL TUBING

Psi	Size	Tensile
100	1/2" dia.	30,000
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## LETTERS

### Boeing Stock

In Aviation Week Aug. 11, in an article entitled "Boeing Awaits Stock to Alleviate," the following statement is made:

"With over 1,100 customers throughout Europe, Australia, Canada, the United States, Mexico, France, Italy, Switzerland, and the Soviet Union, Mr. Alex P. President, making a final holding of 3,300 shares is reported in the latest Senate & Exchange Commission report."

An examination of the report which I had with me shows that of the 3,300 shares referred to, 1,817 were acquired by reason of the 1954 stock dividend declared last May on all outstanding stock of the company. The remaining 1,483 shares I record as an award under the Incentive Compensation Plan of the Company, which is participated in by all employees of the Boeing Aeroplane Company.

WILLIAM M. ALLEN, President  
Boeing Aeroplane Company  
Seattle 1, Washington

During this last addressed Aviation Week that the 148 shares of T.O. Young mentioned in this same article, was received as a stock dividend, and at no award—alas !

### 'Grasp of a Problem'

On page 39 of your June 16 issue you published an excellent article on aircraft noise transients titled "The Blunders of Aircraft Compagny," by Philip Klein. Mr. Klein is to be congratulated on his quite modest grasp of a complex problem.

We would appreciate it very much if you could publish with the article an 18-page reprint of this article in translation written by Electro-mech and Modelle Systems.

A. R. Darrow  
Senior Electronic Engineer  
Unisatified Values Avionics Corp  
San Diego 12, Calif.

### From Protection, Inc.

On June 2 you printed a picture with caption on page 56 dealing with the new Lockheed Cessna. In a different style of the opinion, Mr. K. McMichael, you credit for designing the rear and the bottom fuselage. Mr. McMichael did design the nose which is now being used on our "Tropic" aircraft, but I am sure he would be the first to deny any credit for the "bottom fuselage."

The Tropic aircraft will be designed at the University of Southern California by Dr. Charles F. Lanchester and Mr. Thomas P. Roth (and thus those young men and has come to be the occupied fuselage). But test flights across the nation are being and easily confirmed by the headed to military pilot.

Your magazine and several others have published aircraft writings (New Helium Protection Theory Advanced, 124-46), but otherwise no hedgehog has been the way

known before to more news releases than any other story in the history of aviation. It has been the record on staged magazine, newspaper and radio stories for nearly every jet plane that has been built and has been shown on the heads of most of our men in Korea, but where the copy is short the room is the ship, and the hedgehog has never yet been shown on a magazine or newspaper illustration.

One of the difficulties is that we have continued during the past three years as a laboratory operation and have not started our advertising campaign and have not sought public recognition for our product.

L. P. COOPER  
President  
6521 West Blvd.  
Bogota 1, Calif.

### France's Position

For one, Aviation Week has been very confused. I refer to your July 21 issue and the article headed "U.S. Funds Will Aid European Air Industry." I refer also to your article on the subject, page 11, starting with "The French are losing ground."

The fact is that, of all claimants for the share placement contracts, the French are those who require the least amount of assistance in the form of machine tools (if we can even call them what we put them up against each other) and who are most inclined to obtain European contracts such as the UK's.

The French are rational in offshore placement, especially because the industry's money goes in first priority to help develop the market and to help develop the NATO forces, so that they get a bit for development of aircraft. Then they require limited assistance, not machine tools. Therefore, if the French keep to the left out of the OSP, it means that this should be in the July 21 issue of Aviation Week, which it is not.

I am writing as a satisfied Aviation Week reader and subscriber, not in any official capacity. I hope, however, that this letter will prompt you to seek further information from reliable sources.

A. ROBERT DAWSON  
Colonel, French Air Force

EDT, Monterey Pt., NW

Washington, D. C.

### Fashion Frocks & GIs

In your issue of July 21 appeared the following:

The American look has swept into Korean fashion like lava. GI's in the popular department, natural with a slouch that the chain公子 display and light robes reading "Machineland in Fashion Frocks."

The purpose of this letter is to ask your permission to reprint this section in our employee publications — with proper credit to Aviation Week, of course.

We have about 3,000 women in our employ, and they get a big kick out of seeing their co-workers in such trim. They are highly critical of personal appearance.

It was enlightening to all of us here to learn that our clothes are getting through to the front lines.

JANE J. KERSEY  
Director of Public Relations  
Fashions, French  
Cincinnati 25, Ohio

### Korea's Different

Since leaving home—Central High, L. L. T.—three months ago, I've been lost without my weekly connection with the rest of the aviation world—and would appreciate your thoughts on the subject.

I gave notice of my present assignment, preferred here in Korea, where I would attend a lot of the busy work at Lockheed Aircraft Service at Midfield. Believe me—there are no interesting men. All I can say is that being Superintendent of Maintenance on B-52s here sure is a lousy living being Purchasing Agent at Lockheed.

Please keep our excellent magazine coming, and send me the bill to cover the next three years.

MAGGIE R. A. FAIR  
AO118572  
Air Maintenance Supply  
A.F. 3773 374 Purchaser  
See Previous, Calif.

### From Plascki

Your article on B-52 Work Horse Lockheed in the July 21 Aviation Week has been nothing but pure brain drain to me, greater, smaller and older personnel to the point of despair.

We all find that Dow Anderson did a fine job. The quality of his reporting must be one of the reasons why poor response is had by everyone I know in the aircraft industry.

CLARENCE O. WITZKE  
Editor of Public Relations  
Plascki Extrusions Corp  
Motors, Pa.

### Domani's 'V' Loan

We of Domani and with assistance the July 18 Aviation Week in appreciation of the state agency and its progress by Solti Alexander, the Foreign Minister, for confirming the importance your publication has to the aviation industry we wish to bring to your attention an error in the latter. The "V" loan of \$11,800 should have staff 4113,000.

CHARLES D. ANTONI  
Dir. of Public Relations & Advertising  
Domani Corporation, Inc.  
Montgomery Avenue  
P. O. Box 620  
Danbury, Conn.

# aluminum extrusions -- MIG Alley Must

To the neif and strong will go the race for world air supremacy. That is why aluminum extrusions for our fighter jets have become a MIG Alley Must.

We at Harvey are cooperating with the aircraft industry in its never-ending search for better and newer methods of applying aluminum extrusions to both military and commercial aircraft. Many manufacturers have benefited by the recognized leadership of Harvey's staff of metallurgists and research specialists. Those who have failed to obtain answers elsewhere have come to Harvey for the successful solution of their "impossible" problems.

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MANUFACTURING OFFICES IN PRINCIPAL CITIES

# Allison jets power first mass refueling flight

Confidence in the dependability of Allison jet engines is again demonstrated by history's biggest transoceanic jet plane flight. Three squadrons of Republic F-84G Thunderjets completed the 10,895-mile movement across vast expanses of the Pacific, from Turner Air Force Base, Georgia, to Tokyo. En route, pilots of the Thirty-First Fighter Escort Wing successfully completed air-to-air refuelings—first ever attempted on a mass flight.

This history-making flight, including 2,400 miles nonstop from California to Honolulu, demonstrates the mobility of American air power—and adds new laurels to the battle-proven record of the famed Allison J35 engine.

**Another  
Allison First!**

Designers and Builders of J35 and J71 Axial,  
J33 Centrifugal Turbo-Jet Engines,  
T38 and T40 Turbo-Prop Engines



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DIVISION OF GENERAL MOTORS  
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